

DR. ALISON W. HARLAN.



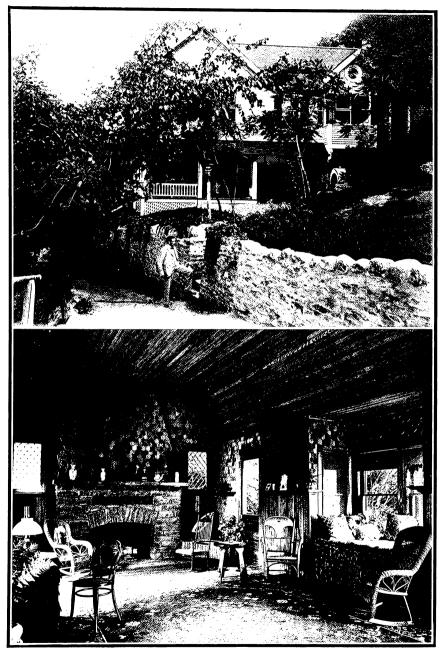
New York's Annual Banquet.

The dentists of the Metropolis have gradually drifted into a most meritorious custom. About four years ago a notable dinner was given at Delmonico's in honor of Dr. A. L. Northrop. Early in the next autumn the announcement was made that Dr. William Jarvie had retired from active practice. The executive committee of the Second District Dental Society immediately issued invitations to a banquet in honor of Dr. Jarvie. This was held in the Astor Gallery of the Hotel Waldorf-Astoria, and was a really grand affair, prominent men from all parts of the country attending. A year later another Waldorf banquet was tendered to Dr. Charles A. Meeker, which proved to be such a success that the committee in charge conceived the idea of perpetuating the function as an annual compliment from New York dentists to some distinguished confrere from some other State. To this end the Astor Gallery was engaged for the third of this series, even while the guests still sat at the second.

On Saturday evening, January 16, 1909, the third Waldorf-Astoria banquet was held in honor of Dr. Edwin T. Darby, of P ladelphia, and proved the popularity of New York's latest idea. About two hundred dentists, including many of our most prominent practitioners, attended, and seated at twenty-four round tables, in addition to the guests' table, presented a distinguished appearance; one of which dentistry may be proud. The great Astor Gallery, itself a beautiful room, was made more

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Figs. I and 2.



festive with handsome hangings, including The Coats of Arms of New York and Pennsylvania, of New York City and Philadelphia twined and intertwined with our country's flags and banners. The tables were beautifully decorated with enormous silver candelabra and vases of rare cut flowers.

Dr. W. W. Walker acted as toastmaster in his usual felicitous manner, and at his call the following speakers paid glowing tribute to the guests of honor, Dr. Darby; Drs. L. D. Shepard, of Boston; M. W.

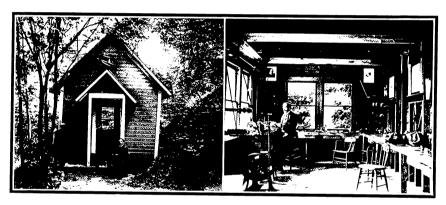


FIG. 3.

Fig. 4.

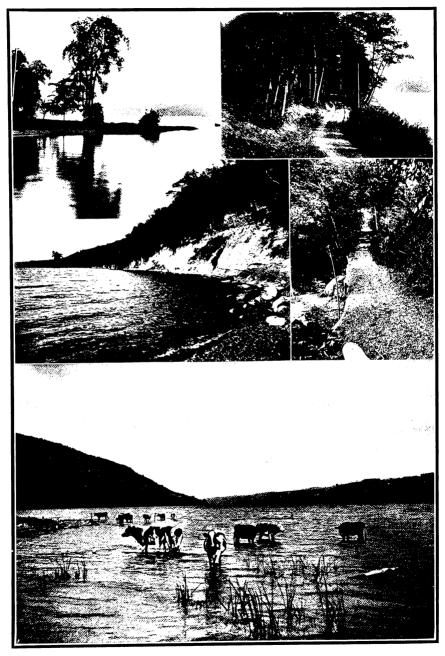
Foster, Baltimore; Charles S. Stockton, of Newark; Truman W. Brophy. C. N. Johnson and J. L. Nyman, of Chicago; E. C. Kirk and James Truman, of Philadelphia; and S. G. Perry, of New York.

A mammoth punch bowl, a masterpiece of the silversmith's art, was presented in behalf of the assembled company, by Dr. R. Ottolengui, who felt honored in receiving the commission to fill this niche in the evening's programme. For indeed it was an inspiring occasion, and the glorious success of this banquet should render it certain that it will be a fixture in New York's dental affairs for many years. It is a great lesson to the younger men in dentistry to see such honor paid to one who has deserved it, while he is yet alive.

Edwin T. Darby, M.D., D.D.S., was born in Birmingham, Broome County, New York, on the 21st of August, 1845. He is the son of Chauncy Darby, a Baptist of English descent.

Dr. Darby was educated at the Cortland Academy of Homer, New York. In 1862 he began the study of dentistry with Dr. Ransom Walker, an eminent dentist of Oswego. He remained with his preceptor one year,





Figs. 5, 6, 7, 8 and 9.



and then at the age of eighteen began the practice of his profession for himself at Marion, Wayne County, New York.

In the autumn of 1864 he entered the Pennsylvania College of Dental Surgery in Philadelphia, from which he was graduated the following March, receiving the degree of Doctor of Dental Surgery. In the autumn of 1865 he was elected demonstrator of operative dentistry in his Alma Mater. Upon receiving this appointment he removed permanently to Philadelphia and engaged in the active practice of his profession. Dr. Darby's practice grew so rapidly and he had confined himself so closely to it that, in five years from the time that he came to Philadelphia, his health was impaired to an extent which demanded a total relinquishment of all work for a period.

Accordingly, in the fall of 1870 he visited Europe, traveled extensively on the Continent, and spent the following winter in Egypt and the Holy Land. In the summer of 1871 he returned to America restored in health and resumed the practice of his profession.

In 1876 Dr. Darby was elected Professor of Operative Dentistry, Dental Histology and Pathology in the Pennsylvania College of Dental Surgery. He held this position until the establishment of the Dental Department of the University of Pennsylvania in 1878, when he resigned to accept a similar position in that institution. The same year the degree of M.D. was conferred upon him by the University of Pennsylvania. When the Board of Trustees of the university decided to establish a dental department Drs. Essig and Darby were selected to undertake the work of organization. Dr. Essig no longer lives to see the growth of the department, but to Dr. Darby it must be a source of great gratification to see the institution that has developed under his care and with the aid of his colleagues.

In 1866 Dr. Darby was married to Carolyn B. Thomas. Four children have been born to them, one son and three daughters. His son, George Dana Boardman Darby, carries on a successful dental practice in this city. Dr. Darby has a most beautiful home at Lansdowne, in the suburbs of Philadelphia, and a summer home on Lake Skaneateles, in New York State, where he spends his summers and interests himself in raising fine fruit and other pastimes peculiar to country life.

In his field of operative dentistry Dr. Darby has won for himself a reputation which unquestionably places him at the head of his profession in the United States. He is intensely devoted to his work, and into it he has placed the very best of his thought and energy.

Over forty years ago the dentist held a very questionable place in society. He was regarded by people in general with suspicion and by

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medical men with more or less contempt. This was not without cause, for many quacks and charlatans imposed upon the public as dentists. Slowly but steadily the profession has risen until to-day dentistry ranks side by side with its sister profession of medicine. This change has been due to men like Dr. Darby, men of talent who have put their best into their work, not merely for remuneration, but for the sake of placing their profession upon a sound and scientific basis.

Among the men who have worked for this end Dr. Darby has been one of the most influential. He has been many times called upon to give clinics before dental conventions; he has contributed largely to the dental journals of the country, and by every means in his power he has sought to extend to others the good things which he has himself discovered.

But it is as a teacher he has done most for dentistry. For thirty years he has held the chair of Operative Dentistry in the Dental Department of the University of Pennsylvania. Year by year his students have gone forth to all parts of the world to put into practice the principles he has taught them. The influence he thus exerts is unlimited. He thoroughly instructs his students in the underlying principles and technical details of operative dentistry; but this is not all, for the personality and teaching of Dr. Darby serve as prime factors in elevating the ideals of those who come within the reach of his influence. No son of the Dental Department of the University of Pennsylvania, if he follows the spirit of the teaching of Dr. Darby, will ever practice his profession in any but an ethical manner.

He is a member of the National Dental Association, and was elected its president in 1883. He is a member of the Pennsylvania State Dental Society, and was elected its president in 1875. For eight years after the passage of the Dental Law, Dr. Darby served as one of the Board of Examiners for the State of Pennsylvania. He is a member of the New York Odontological Society, a member of the Central Dental Association of New Jersey and of the Philadelphia Academy of Stomatology.

The New York State Dental Society, through the generosity of Dr. William Jarvie, and at his suggestion, has established a "Fellowship," one "Fellow" being appointed each year, to each of whom a handsome gold medal is awarded for distinguished services in aid of the progress of the art and science of dentistry. Dr. Darby is one of the very few who have thus far received this honor.

In connection with this brief sketch of the career of Dr. Darby we are pleased to be able to present a few views in and around his summer home, and it may interest our readers to know that these are from photographs taken by his life-long friend, Dr. Matthew H. Cryer, who is not only a great anatomist, but likewise a fine artist with the camera. Fig.



I is a view of Dr. Darby's cottage at Glen Haven, the doctor himself standing at the gateway. Fig. 2 is the interior of Dr. Darby's den. Fig. 3 the exterior of his "workshop." Fig. 4, interior of same, showing Dr. Darby at work at his lathe. Fig. 5 (upper left corner), Hooker's Point, about two miles from the cottage. Fig. 6 (right upper corner), road along Lake Skaneateles from Glen Haven Hotel to the cottage. Fig. 7 (below Fig. 6), path from Dr. Darby's boat house to the cottage. Fig. 8 (under Fig. 5), Martha's Cove, opposite the cottage. Fig. 9 (scene with cows), head of Lake Skaneateles.



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### H Consideration of Infra-occlusion.

By Dr. Alfred P. Rogers, Boston, Mass.

Read before the American Society of Orthodontists at Washington.

When one or more teeth fail to reach their proper position in relation with the occlusal plane, they are said to be in infra-occlusion. This condition may be confined to the anterior portions of the upper arch, as we see so frequently in those cases which are sometimes termed "the open bite," or it may be found on the lateral halves of the dental arches, involving the bicuspids and molars of either the upper or lower arches, or both. There are also cases on record showing an infra-occlusion of the entire upper and lower dentures.

There are few problems, if any, of greater moment or greater seriousness to the orthodontist, than the treatment and retention of infra-occlusion, alone or in combination with other mal-developments of the dental arches. It may be associated with almost any condition, but is most serious when found in combination with supra-occlusion. Then it presents a deformity of the most serious character. It is for the consideration of those cases where a number of teeth are involved, rather than of those in which only one or two teeth play a part, that I ask your attention.

Etiological Factors. In making observations regarding the etiology of infra-occlusion, I have been unable to find anything that would suggest to me that the condition may be of pre-natal origin, except in those few cases where

undue lack of development of the pre-maxillæ makes it impossible for the





Fig. 1.

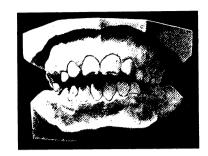


FIG. 2.

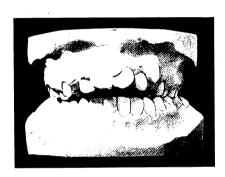


Fig. 3.

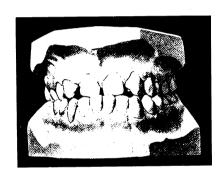


Fig. 4.

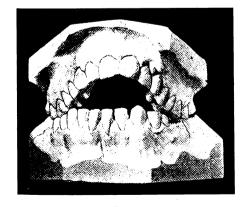


Fig. 5.

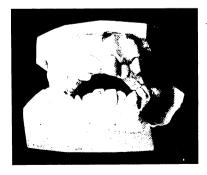


Fig. 6.



teeth to erupt sufficiently far to occupy their proper position on the occlusal plane. In many cases the causes seem very generally identical with those which we are convinced produce other forms of mal-occlusion; for instance, those which seem traceable to the inability of the anterior teeth to erupt, due to the lack of development of the facial bones. There are other classes which seem to be directly due to habits in connection with the thumb, lip or tongue considered as the exciting cause. There are other cases in which every known causative factor of mal-occlusion may be well imagined to have played a part. My endeavor shall be to present to you as large a variety of infra-occlusion as my collection of models will allow. Fig. 1, a girl of thirteen, is a simple case, showing what the tongue may accomplish in the establishment of infraocclusion. There was no distal relationship in these arches before the habit began, and I learn from the history of the case that the habit was not in operation until after the eruption of the permanent teeth. habit is a simple one, but difficult to control. Merely the pressing of the tongue against the lingual and cutting surfaces of the upper incisors. This action, you will note, if you try it for yourselves, has a tendency to throw the lower arch distal to normal. The lower arch in this case is of normal shape and size, but the upper is slightly narrow in the molar and bicuspid regions.

Another form of infra-occlusion, and one which is very prevalent, is that which is stimulated, encouraged and sometimes caused by the habit of thumb-sucking. Fig. 2 shows a case of this kind in a boy about nine years of age. The habit was persisted in for many years, the father assuring me that it was present from infancy, and continued until the boy was nine years of age. After that the habit of thumb-sucking was discontinued, but the habit of tongue-sucking was substituted.

- Fig. 3. This case represents infra-occlusion in a girl of fourteen. It is due solely, as far as any history of the case is concerned, to a lack of development of the maxilla. No one in connection with the family remembers that the girl has had a habit of thumb, lip or tongue-sucking. It seems entirely due to an unfortunate contact of the various teeth in their efforts to erupt where the bony development was not great enough to allow them to assume their proper positions.
- Fig. 4. This type of infra-occlusion is due to the lack of development of the pre-maxillæ. It was surprising to me to find how thin and insufficient was the osseous development in this case. The laterals were entirely absent, and the insufficiency of the bony tissue was so great that the incisors were not even firmly held in their sockets. This case seems to reflect a strong possibility of pre-natal origin.
  - Fig. 5. This extreme type of mal-occlusion, in a nineteen year old



boy, has had several factors in its development. I have been able to trace habits with thumb and tongue, and a childhood environment, that would be expected to produce severe mal-occlusion without the help of these pernicious habits. The thoughtless dentist had his share also, because he extracted the first and second molars on the lower right side. This case is extremely difficult of treatment, and even more difficult of retention, and I hope it will serve to warn every thoughtless dentist that he is lacking in his duty and ignoring his privileges if he allows to develop among his child patients any such condition as illustrated here.

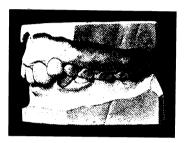




Fig. 7.

Fig. 8.

Fig. 6 is a girl fourteen years of age; the condition is again due to an unfortunate combination of all the causes that produce mal-occlusion; but although the incisors have not reached their full position upon the occlusal plane, the molars have advanced beyond their positions and have assumed the state of supra-occlusion. There is also a marked hypertrophy of the tissues in the molar region. This, too, has a history of neglect and procrastination, and a record of constant mouth-breathing.

Fig. 7. This class of infra-occlusion is confined to the molar region, and is one which I shall speak about more fully when I come to the treatment of these cases.

Fig. 8. This is the result of a habit of sucking the thumb, and later the tongue, complicated by extraction of the lower right molar; there is also a history of adenoids and enlarged tonsils, and, of course, mouth-breathing.

During that period of transition, between the loss of the deciduous and the complete eruption of the permanent teeth, there is a gradual growth of the face in length, breadth and depth. The length is influenced very largely by the increased vertical development of the teeth and their processes. It is during this period, in normal cases, that a new and correct occlusal plane is developed; but in those cases where abnormal influences are introduced there is a destruction of occlusal balance



frequently resulting in mal-development of the occlusal plane. If the incisors are allowed to develop unhampered, they reach their correct occlusal altitude, but when influenced by retarded development in the pre-maxillæ, from whatever cause, they are prevented from reaching their typical positions. The same is true in the molar and bicuspid region.

As we have seen that infra-occlusion consists of the failure of one tooth, or any number of teeth, to reach their proper occlusal plane, it is very clear that

we must endeavor to arrive at some method whereby we may know where the occlusal plane shall be and whether or not we are dealing with infra-occlusion or supra-occlusion, or a combination of both, I believe it to be quite generally admitted that there are many types of occlusion, as there are many types of faces—yet each type must have certain distinctive characteristics that may be classed as normal, just as in the mouth we look for the correct mesio-distal position of the arches and the proper relationship between the inclined planes; but aside from these characteristics, occlusion must vary, and we find various types whose distinctive features classify them. These features consist of the shape and length of the inclined planes, the inclinations of the roots and the shape of the occlusal plane, etc. It is, therefore, quite essential that the orthodontist should classify, that he may be able to recognize types and thus aid himself in dealing with these cases of infra-occlusion. occlusal plane may be either a pronounced curve, a slight curve, or even approximating a straight line, according to the type. I was much pleased a short time ago to be shown a compilation of the types of teeth and of occlusion being prepared by Dr. A. W. Crosby. The idea is one which will exactly suit our purpose in our studies, and will be of great value to us in our treatment of those cases where it is necessary for us to establish a new and correct occlusal plane. For instance, taking that section upon occlusion, we are told that in the bilious temperament we have a long over-bite and a dip of the arch in the compensating curve, with strong interlocking of the cusps, indicating that the inclines on these teeth are steep and that the cutting edges are sharp. Now, in the sanguineous type the over-bite is short and the compensating curve is rather flat. the nervous temperament we again have the long over-bite and the marked compensating curve. In the lymphatic we have the short overbite with very little depth to the compensating curve. From this we can readily see that the occlusal plane indicates to us the type, and if we understand the type we will understand how best to establish the occlusal relations. The one point about all this that is of most practical value in the treatment of infra-occlusion is the length of over-bite.



Creatment.

In making our study of the treatment of infraocclusion, let us begin with the correction of that class in which we recognize infra-occlusion in the

molar region, which is very often found in Class 2, Division 2, and sometimes in Class 1. A very interesting and valuable case of this kind, showing infra-occlusion in both upper and lower lateral halves, has been treated by Dr. Frederick G. Kemple. A description by Dr. H. A. Pullen may be found on page 627, Text Book by Johnson. Upon first observation one is very apt to feel that there is a supra-occlusion of the incisors, Figs. 7 and 9, but in cases of those young in years it does not seem reasonable that the lower or upper incisors should erupt so rapidly and



Fig. 9.

take their positions so far beyond their proper occlusal plane. Again, a fact that makes me believe that they do not erupt further than their natural positions, is that although the central incisors erupt first, they do not continue their course, but are soon caught up with by the laterals and occupy with them a common plane. It has been quite generally supposed that in Division 2 of Class 2 the incisors are in supra-occlusion, and that in treatment they should be depressed in order to establish the proper occlusal relations; but it has occurred to me that this plan is not the correct one, for it seemed that these incisors which were apparently in supra-occlusion had in reality only reached their proper positions and by reason of the infra-occlusion of the molars, usually the lower, these incisors were allowed to glide past each other, with the result so familiar to us all, as shown in Fig. 7.\* In these cases the simplest and most effective treatment is to re-establish the shape and size of the arches, then follow this by the application of a retaining device similar to the one shown in Fig. 10. This, of course, applies more perfectly to those cases which are brought to us early, say between the ages of six and eleven. The biting surface of this plane is made to occupy a distance

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<sup>\*</sup>I wish here to refer the reader to an article written by Dr. R. Ottolengui, published in the "ITEMS OF INTEREST" in July, 1908, especially to the section on the occlusal plane, p. 504.



from the cutting edge of the incisors equal to the length of the over-bite of the special type to which the case belongs. For instance, if a nervous type, a long over-bite, if a sanguineous type, a short over-bite, etc. The application of the lower retainer is made in such a way that there is ample opportunity for individual tooth movement, so that the erupting bicuspids and cuspids, as well as the lower molars, may easily find their way into their proper occlusal relations. Following out this treatment, I have found it unnecessary in these cases to use the inter-maxillary elastics unless one wishes to bring the lower molars more quickly into





Fig. 10.

Fig. 11.

occlusion with the upper. Fig. 11 shows the lack of buccal occlusion, with the retainers in place, and the jaw closed. Delicate elastics may be made to engage hooks placed on the buccal surfaces of the molar bands. The ease and comfort with which these cases have been treated has been a source of the utmost satisfaction. Should the bicuspids erupt in torsal-occlusion, they can be brought into their proper position by the use of ligatures and the lingual arch.

Coming to the treatment of those cases where we have infra-occlusion of the anterior teeth, particularly in the upper arch, it is a matter of much greater seriousness, and although it is a fact that tooth movement in this direction is sometimes easy, yet there are many dangers that must be guarded against, such as too rapid movement; too great an intermittent pressure; the danger of instability of the molar anchorage; the elevation of the lower cuspids and incisors, where such is not indicated, all these usually being due to an unequal balance of force. In the application of appliances for the correction of these conditions, it has been my experience that the lighter the expansion arch the more effective is the work; especially is this true in older cases where expansion of the arch in the molar region is not indicated. I have found in these cases that the use of the 18 gauge expansion arch has given some very satis-



factory results. Figs. 12 and 13 have been produced with a view to showing you the form of appliance which is found most effective. You will notice the spurs that are soldered on the under surface of the lower arch, and also on the upper surface of the upper arch. It will be observed that these are slightly ball shaped. They are made from clasp metal wire, 22 gauge, and after being soldered to the arch and cut a little longer than the proper length, the ends are held over the flame until they are melted into a ball shape, which you see in the illustration. This gives an easily made appliance, and no filing is necessary before the polishing is done. The location of these spurs, particularly those of the





FIG. 12.

Fig. 13.

lower arch, is made according to the requirements of the case under treatment. If we have a case of Class 2 complicated with infra-occlusion, then we are likely to place our spurs on the lower arch somewhat distal to the lower cuspids. If it happens to be Class 3, we would desire them mesial to the lower cuspids.

Perhaps a word regarding the clamp bands may be advisable. For the sake of reinforcing the molars to which they are attached, I find it a good plan to solder a spur on the mesial aspect of the band, allowing it to engage the morsal surface of the second bicuspid or pre-molar. With the 18 gauge arch and the use of the raw silk traction cord No. 1, there is little strain put upon the molars at any time. These ligatures have the happy faculty of marked shrinkage upon being wet, which causes a very gradual, very steady correction of these cases. Few teeth at a time should be ligated. In some cases it is advisable to bring the strain upon two teeth only, while in others when the movement appears easy, some four or six teeth may be ligated. It is not always that I find it necessary to put into use the vertical or "up and down" elastics, as they are termed by Dr. H. A. Baker, but in cases where they are used it is advisable to use great care that we have stationary anchorage of the lower arch, unless it is desirable to change the position of these teeth also. There is one important feature regarding the correction of infra-occlusion



which must be clearly stated, and that is that in all cases the best results are obtained if harmony in the size and shape of the arches is first established.

Retention. It may be safely said that with few exceptions there is no class of mal-occlusion which is more difficult of retention than those which are complicated by infra-occlusion, especially when treatment is delayed until the permanent teeth have all erupted. It is quite a different matter to treat and retain a case where all the teeth have not erupted, because by

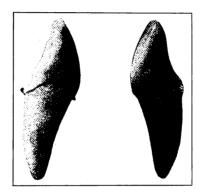


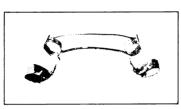
FIG. 14.

the addition of new bony material deposited about the newly erupted teeth, the corrected deformity is brought into more natural relationship and reinforced, so that a long period of retention is usually unnecessary if any existing habit which may have previously influenced the condition has been broken. There have been many means employed for the retention of infra-occlusion, in that class of cases distinguished by the term "Open-bite."

A retainer that I have found very effective in one class of my cases is constructed on the idea illustrated in Fig. 14, which is a picture of the central incisors. You will notice that at the junction of the enamel and cementum there is a slight depression both lingually and labially. There are some cases in which these points may be taken advantage of, and a retainer constructed similar to the one shown in Figs. 15 and 16, with molar bands and lingual wire, and labial arch from cuspid to cuspid. It has been my experience that in these cases when the cuspids and centrals are firmly held in position, the laterals remain also without any special pressure being brought to bear upon them. After the retainer



has been placed in position, the points A and B are burnished firmly against the labial surface of the tooth at a point shown in the last figure. At the same time the two spurs on the lingual side are securely burnished against the point on the lingual surfaces of the teeth. This, I believe, in those cases where the central incisors will permit, is one of the best forms of retention. The lingual arch must be constructed of very stiff clasp metal wire of 18 gauge, with a spur engaging the grinding surface of the second bicuspid, as is the case during treatment. Another form which I have used to advantage is one in which there is an ab-





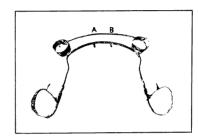


Fig. 16.

sence of the labial cuspid to cuspid wire, its function being performed by two bands upon the central incisors with lugs engaging the laterals and taking advantage of the same points on the laterals explained, regarding the centrals, in the last retainer. The lower retainers are constructed upon the same general plan, but I think it usually advisable to band all six of the anterior teeth and allow the teeth to be supported by the use of spurs over the lingual arch. Especially is this true when the up and down elastics are to be used at night. The subject of retention of these cases is one that will require a great deal of study, and contributions from many men before it is finally solved, because there are so many variations and the form of retention depends so largely upon the age at which the correction of the mal-occlusion has been undertaken and that frequently present factor of unbroken habit. It does not seem necessary for me to make any particular reference to the retention of Class II, Division II, for little or no retention is necessary after the eruption of the permanent teeth. What I have given you is simply what has been found in my own experience to be trustworthy and vet I feel like saying that anyone of these methods may fail if its application is not exactly what is indicated.



## Correction of Babits.

Close upon the consideration of retention of infra-occlusion, I would bring to your notice one of the most serious offices that the orthodontist has in the correction of those cases which we are convinced

are influenced or caused by habit. It is the duty of permanently breaking these habits in young children, for failure here renders all skill in treatment and retention of no avail. It is true that in the very young methods of procedure, such as the use of the aluminum mit, are quite effective in one form of habit, but very often older children are brought to us who are seriously addicted to these habits, and as every intelligent orthodontist knows, so long as the habit remains unbroken and completely so, it is useless to waste time and energy in an endeavor at correction. It has been my privilege to have one or two interesting cases of this kind, and the method used may be of value to someone else. Of course, it is possible in these older children to tie the hands and to use mits, etc., but I think it quite true that these methods are but indifferently successful, besides being a humiliation to the child, and constant hardship to the mother or nurse, so that their application is frequently forgotten, which adds to its inefficacy; again, from a psychological standpoint, the breaking of habit by force or by punishment has not the advantage to the child that we desire. Therefore, in children of older years it is my custom to endeavor to teach them how they can by mental control overcome and forever abandon that which is destroying the contour of their faces and making impossible the normal occlusion of their teeth. Being essentially the children's doctor, it is taken for granted that each employs a successful method in dealing with children; as a class there is no one who deals more gently or more kindly with their patients than the American orthodontist. It is as essential to his success to gain the love and trust of these little ones, as it is to have the ability to make and adjust beautiful and accurate appliances. Therefore, if he has gained their sincere trust, he has placed himself in a position to begin his work in the breaking of habit, but possibly one illustration of a recently successful case may explain this method better than can be done in any other way.

A mother brought to me her little girl, eight years of age, who was suffering from infra-occlusion. She had had the persistent habit of thumb-sucking from early childhood. Nothing that the mother could do seemed of the least avail. An appointment was made for the child when I knew there would be plenty of time to talk with her. The mother told her that one of the first things that would be required of her would be to stop sucking her thumb. In answer to this, she very curtly sent word to me that she would not stop for me nor anyone else, and that she sucked



her thumb because she wanted to. It was now quite clear that my first duty was to gain the child's confidence, and when I had got near enough and found that she had grown somewhat interested and trustful, the various evils of the habit were pointed out to her, and it was explained to her how she could never look normal or like other girls if she persisted in it. I explained to her that it would be useless to try to correct her teeth unless she too would do her part. Finally, by degrees, she began to realize the seriousness of it all, and admitted at last that she did really want to stop. Here, of course, is the point. We must create a desire on the part of these children and stimulate that desire until it grows into a determination to overcome that which is harming them. It was then pointed out to her that she must work from within, teaching her about her will and what the will would accomplish, showing her how in many ways she willed to do things and usually did them, pointing out how she could direct her will to break any habit she wished. Before she left, there came the earnest promise that she would try very strongly and determinedly, and she did. A week later she came again and very confidently whispered in my ear that she had had her thumb in her mouth but once and that she was never going to do it again. Later, I learned that that once was after she had been very much exhausted from a day of over-play. Such a method, I believe, is the most successful and the most useful, because who can estimate its true value upon the young mind just learning how to care for itself?

#### Discussion of Papers of Drs. Watson and Rogers.

Dr. Pullen. Which Dr. Rogers has read to us to-day contains, to use the popular phrase at this meeting, "much food for thought and reflection." It contains much food for thought, because it deals with the etiology, diagnosis and treatment of a form of malocclusion which is so uncommon and diverse in its characteristics that no one man's experience can include them all, and which present in every class of mal-occlusion with such extremes of attendant difficulties in treatment as to baffle the most expert. Therefore it is that after a due consideration of all the known varieties, as presented to us in the essay, we still have food for reflection, which food it is to be hoped, will, if scientifically digested, be so assimilated as to most particularly benefit each one of us.

Infra-occlusion is best described by the designation of the region in which it is observed, as infra-occlusion of incisors, incisors and cuspids, cuspids and bicuspids, bicuspids and molars, etc. It has occurred to me

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that we have not been careful enough in our observations to note some of the characteristics which enter into these conditions. For example, in infra-occlusion of the incisors, cuspids and bicuspids, and oftentimes when it extends into the molar region, we have a condition in which both upper and lower dental arches take a part in their variation from the normal occlusal plane; this latter being, so to speak, in a line drawn in space between the incisal edges of the upper and lower incisors. Especially in this condition may be noted the greater length of the lower third of the face, and the partial or complete obliteration of the angle formed by the ramus and body of the mandible in many cases. This class of infra-occlusion is usually the extreme mouth-breather, exhibiting to the greatest degree the effects of the habit, and the abnormal tension of the muscles.

Treatment of this condition is theoretically correct, in which the occlusal plane lies, we will say, half way between the upper and lower incisors, which would imply that the teeth of both upper and lower arches be moved equally toward the imaginary line of the occlusal plane, involving such application of dynamics and such control of resistance—to say nothing of retention—as has not been described by anyone attempting this treatment.

After the age of six or seven years it is my belief that any change in the obtuseness of the angle of the mandible is well nigh impossible to accomplish through present known methods of operating. However, I do believe that if this condition is treated before the age of six or seven years that it may possibly be completely overcome, especially with the use of the head-gear and chin-cap assiduously worn.

Again, I would call your attention to the over-development, or supraocclusion, of the molars, involving infra-occlusion of the incisors, cuspids and bicuspids. Here we have another combination of evils which has been mentioned by the essayist, in the treatment of which conditions our utmost skill is demanded.

The essayist has also pointed out to us that in the etiological factors involved, the habits of thumb, lip and tongue-sucking are oftentimes concurrent evils, adding still greater difficulties to the treatment, and for which the suggestions he has made for control of the patient are very pertinent.

A new thought has been suggested to me in this paper, and that is the possibility of determination of the occlusal plane by a diagnosis, as it were, from the length of cusps, the over-bite, and the indicated compensating curve. In order to do this we must go back to the studies of Bonwill, on the laws of articulation, which are as essential to the science of orthodontia as the laws of occlusion.



Dr. Ottolengui.

I think Dr. Rogers was very right in saying that these two papers lap. For example, I think that all Dr. Watson said this morning about making haste

slowly is as applicable in infra-occlusion as in the cases to which Dr. Watson alluded. I am at the present time, as in the past, still of the opinion that the so-called supra-occlusion of the incisors in Class II is more apparent than real. I believe the super-imposed (Fig II) casts of Dr. Rogers, where he moved the lower cast forward to fit the inclined plane back of the central incisors, is a truer picture of the real facts than you get when you accept the idea of the supra-occlusion of the incisors. I have no doubt Dr. Rogers gets the results he describes with very young patients. Dr. Barnes's remarks this morning about getting rid of these difficulties while the patient is young are pertinent; but we are still obliged to conduct some cases where the patient is eleven or twelve years of age, or older.

I wish to report to you a method of treatment in connection with Dr. Watson's suggestions, which I have used with satisfaction in the last year and a half. Dr. Watson spoke of the very unsatisfactory results obtained after elevating the lower molar through traction of intermaxillary force, of finding it settle back later on. If you start with the preconceived idea that you wish the molars and bicuspids elevated you might do, during treatment, what I have done only during retention, and so get a better result. This is the line of procedure: Band both bicuspids in the lower arch, as soon as they have been brought into arch alignment; have a lug or resting place on the buccal surface of each of the Magill bands. Solder to the buccal surface of the molar band a wire, extending it forward as far as a little in front of the first bicuspid, and resting it under the lugs. You may thus accomplish two things: elevate the molars less rapidly, and at the same time elevate the two bicuspids with this force. The hook for the elastic, however, must be at the mesio-buccal angle of the molar. You go slowly, but get a more stable anchorage, and do something toward the elevation of both the bicuspids and the molar, and thus help to cure the infra-occlusion on that side. In two presumably completed cases last spring I found what is sometimes called an "openbite" in the molar and bicuspid region, and I was disgusted to think I had not done any better. They were retained with devices made as above described and use of the intermaxillary elastics continued, and both patients came back with the teeth in full vertical occlusion. safer in this type of mal-occlusion to utilize the intermaxillary elastics during retention. Their effect is self-limiting, and you are not apt to overdo the work. In my most successful case of infra-occlusion of incisors and cuspids the treatment covered a period of three winters.



with summer resting periods between; the up and down elastics were used continuously. At present the child simply wears them at night, and I know that no harm has resulted.

I believe in these cases, more than in any others, we must wholly depend upon a more or less continuous force, and with as fixed appliances as possible.

If we are to make scientific progress at all the time has arrived when we must study for ourselves this problem of infra-occlusion. causes me much perplexity. It is comprehensible to my limited brain cells that in the building of the human structure, as in any other, there may be a normal nourishment of the parts of the body, with the possible exception of one part. In other words, I understand how one part might not receive sufficient nourishment, because of a lack of material or of vital energy to utilize the material. I can understand a lack of development locally, but it is difficult to comprehend, in the absence of true disease, the overgrowth of a single part. It is, therefore, easier to believe that Class II is an infra-occlusion of the molars and bicuspids, and that the open-bite cases are caused by a lack of development of the premaxillaries than it is to believe that the incisal region of the lower jaw in one case, or the buccal processes in the other are overgrown, overdeveloped, etc. We need to know much more than we do of bone development.

Dr. Rogers has not only gratified, but instructed us, but I have found some difficulty in trying to understand one or two of his terms. One is "infraocclusion." There seems to me to be a contradiction of terms there. He said at one point "characterized by open-bite."

The next question I would ask is, did he carefully calculate, in the models shown on the screen, the width at which he wished to spread laterally the molars? There is a definite calculation open to us, and when the molars occupy those lateral positions relative to each other which they ought, in many cases which I have seen, this open-bite becomes very nearly a close bite.

Dr. Rogers.

I do not think I can answer that question for you any better than you can answer it yourself. Infraocclusion means that the teeth have failed to reach their proper plane. That plane is imaginary until we have established the proper type; then, of course, we have the proper plane established.

No doubt we could improve our nomenclature very much, and as our work is still in its infancy we may hope Dr. Bogue will give us a better term very soon.



As to the width of molars, I was influenced by Dr. Hawley's scheme of charts. I took those to be as nearly accurate for the type of case as necessary.

I wish to make my earnest thanks to Dr. Rogers

Dr. Bogue. for that explanation. I am not trying to cavil, but
am in earnest. We should all understand as valuable
a point as that, and all it means.

Another question, which has a bearing on his paper, as well as Dr. Watson's: Does Dr. Rogers regard the retention of the lower teeth as something rather more important than the retention of the upper? As nature erupts the lower teeth first, and the upper teeth are guided into their normal positions (if the teeth are normal) by means of the cusps and inclined planes thereupon, does Dr. Rogers take pains that the lower planes shall be retained especially, in preference, if necessary, to the upper?

Dr. Rogers, If the lower arch has been broadened, it must be held. If no infra-occlusion exists in the lower arch, I should not regard it necessary to retain it, i. e., if the infra-occlusion is found solely in the upper arch.

Dr. M. B. Gryer. With the active work of this society. I expected to discuss a paper yesterday and then enjoy the sights about the city with my wife. But I have asked her to go alone and allow me to come here and listen. You are all so energetic that it does my heart good.

Dr. Ottolengui strikes a key-note—not *thc*, but *a* key-note—when he speaks of the bone nourishment and development. The first principle of good surgery of the mouth is that you must know your anatomy—you must know the physiology of those parts. You must also know the pathology. You younger men should use some of the energy that you do use in the correction of irregularities, in those two branches, physiology and pathology. At some future time I hope I will be able to speak further on the physiology and pathology of these conditions which have been illustrated on the screen.

Speaking of Fig. 2 shown by Dr. Rogers: he spoke of the child as a thumb-sucker. According to the intimation Dr. Ottolengui has given us, we should look further than the thumb and the position of the teeth—we should look at the character of the teeth. They are not typical incisors. They are round and more oval-shaped, and the points appear to have been lost, as though the child had some eruptive disease during the development of the enamel of the teeth. There was a lack of proper nourishment at that time perhaps. I presume that while that was going

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on there was a lack of nourishment of the alveolar process and perhaps of the true maxilla, and if so, the eruptive force of the teeth, whatever that may be—did not have the power to push those teeth down into their normal positions.

I think it is well, as Dr. Ottolengui suggests, for us to study those points a little more closely than we do.

Dr. hawley. Two points occur to me that may be of value in regard to thumb-sucking. There is one case I had in my own practice this year that was typical. The patient was a girl ten years of age. So far as family interference was concerned, every possible effort was made to break up the habit, namely, mittens, plasters, etc., were used, but the child would remove these things during sleep. Upon commencing treatment (a Class II case) I placed on the upper right central incisor a plane band and upon the lingual surface of that band soldered a wire spur, extending one-sixteenth of an inch below the cutting edge of the teeth. On the lower right central incisor a similar band and short piece of wire was placed. I had a doubt as to whether the spurs would not cut the tongue, or interfere with eating. To my surprise and gratification the mother said the child ceased to suck her thumb, and the appliances did not interfere with the eating.

Another is a case of Class II, with open-bite, which I treated. The child was eleven years of age. The cuspids were not erupted, and the upper centrals and laterals were in infra-occlusion. Treatment lasted thirteen months, with light elastics. The width of the upper arch was very nearly normal, and little expansion was necessary. The upper section of the maxilla seemed to move down bodily into its place-slowly, but without extruding the teeth. The first retention I used was that of a stiff arch, fitting tightly in buccal tubes on molars, and sprung upward to engage spurs on the incisor bands. I used a seventeen gauge platinized gold arch. In six weeks the teeth commenced to move back. I removed the arch, changed the spurs on the lower molars, etc., banded the centrals and laterals, with a hook over each lateral, slanting slightly backward. The lower teeth were banded and fastened together. I used a very light elastic, somewhat on the plan Dr. Watson has suggested. While very light, it has retained the case completely and with great comfort.

I had the pleasure last spring of seeing some of Dr. Watson's cases in his office, and I can assure you that the treatment was ideal and the retention successful. The influence of this loose arch on the anterior teeth is something which has been impressed on my mind in the use of the removable retainer. I have been surprised at the accuracy and the



ease with which a labial bow, resting against the teeth, with a lingual plate, will hold teeth that were rotated. It seems that just the constant touch of the arch or bow will keep them in position even better than bands. There is something in the constant contact of the arch, bent just to the arch of the teeth, that is of much advantage.

Dr. Kemple.

I would like to know what is the proportion of cases of the type being considered, wherein Dr. Rogers has found that the close attachment of the frenum has been a factor in preventing the eruption of the upper incisors or the development of the pre-maxilla?

Dr. Rogers.

I never made any special note of that point.
You do not mean the abnormal frenum, do you?

Dr. Kemple.

It would be a short frenum, and an active, nervous upper lip.

Dr. Rogers. It is a new idea to me. I have not noticed it closely enough to tell you anything about the proportion of cases wherein it may occur.

Dr. Young. In regard to the bite-plane which Dr. Rogers showed on the screen, attached to bands on the central incisors. As I understood the slides, his was a

solid bite-plane. If these are worn for any length of time the tissues directly under them and around the central incisors become much hypertrophied and inflamed. I have overcome this by using a skeleton bite-plane, made from say a nineteen gauge iridio-platinum wire. By using this gauge of wire, and bending it properly, you can overcome the difficulty I have mentioned.

Dr. Watson. I think there is nothing further I care to say on the paper, with the exception of answering the question of Dr. Lourie. In his opinion, because we have failed in times past to retain incisors depressed in their sockets, we should not stop our efforts. The sentiment is fine, but I can not think of anything which will accomplish this. I am forced to the conclusions which I have arrived at. I thank you for the very courteous consideration given my paper.

Dr. Rogers.

I feel much as Dr. Watson, and have nothing further to say. I think the subject has been very thoroughly discussed. I also believe there is a large field for us to investigate. We are only making a beginning now. Possibly somebody may next year give a paper far in advance of anything we have reached to-day.

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## Che Bacterial Vaccines in the Creatment of Pyorrhea Alveolaris.

By FRIEDRICH HECKER.

Read before the Second District Dental Society, October, 1908.

(Continued from page 195.)

The next great step in the history of the evolution of bacteriology is the principle of the action of the bacterial vaccines given to the world by Dr. Sir A. E. Wright. Dr. Wright, while in the Army Medical Service of Great Britain, was sent to India. While in India he carried on very extensive researches with the bacterial vaccines, and in 1900 published his first article on the prevention of typhoid fever with a specific vaccine. In this article he described the technique pursued; also the value of the "Opsonic index" in determining the refraction of an individual to this disease. His next article was "Notes on the treatment of furunculosis, sycosis and acne by the inoculation of a staphylococcus vaccine generally on the treatment of localized bacteria invasions by therapeutic inoculations of the corresponding bacterial vaccines" (published in The Lancet, March 22, 1902). Dr. Wright has by the aid of the "Opsonic index" advanced the science of the cause of disease which is the result of the action of micro-organisms a step nearer the final goal, for by the aid of the index the investigator can approximately determine the refraction of an individual suffering from the action of an organism. Prior to this technique the investigator had no guide whatever. Many noted investigators have cast aside the value of the opsonic index, holding that it is not accurate. Granted that this is the case; but if the opsonic index offers any assistance at all why cast it aside? Without question it is of value. Is it not better to have a method yielding approximate results than none at all? Wright gave to the bodies which are concerned in the process of immunity the name "opsonins."



#### Che Opsonins of the Blood, What they are, and their Functions.

The word "opsonins," coined by Wright, is of Greek origin and means "I prepare food." Our knowledge of the means of the prevention of bacterial invasion is imperfect at present. Many names have been given the substances which play a part in this process, viz.: stimulins, lysins, precipitins, agglutinins and opsonins. Each, it is claimed, play a part in enabling the phagocytes to complete the destruction of the offending organism. Metchinikoff claims that the principal ferment concerned in the process is the stimulus. Wright has shown by actual experiment that there is present in the blood a ferment that has a direct action on bacteria, and that by this action the bacteria are prepared for complete ingestion by the phagocytes. This ferment Wright has termed the opsonins of the blood. It is argued that this ferment is found in the cytoplasm of the phagocytes. From this hypothesis it is rational to conclude that, in an individual suffering from the action of an organism, the refraction is below normal. And the cause of this lowered refraction is that the opsonic bodies of the blood are inactive. Thus, if one is desirous of raising the refraction of the individual it is necessary to stimulate the phagocytes. A demonstration of the action of the opsonins of the blood is easily made if the technique of Wright is pursued. To a small quantity of freshly drawn blood in a test tube add eight or ten times the quantity of a 1.5 solution of sodium citrate, the tube is then thoroughly shaken. On the completion of this step the tube is placed in the centrifuge ten minutes.

This tube is then removed from the contrifuge and the supernatent fluid is piped off. After having removed the supernatent fluid there is left in the tube a precipitate which is composed of red and white blood corpuscles. To this precipitate there is now added eight to ten times the quantity of an 8 per cent. solution of sodium chlorid. The test tube is again thoroughly shaken and is then placed in the centrifuge for ten minutes. This step in the technique is repeated several times. The object of this technique is to get rid of all of the fluid portion of the blood, and when this is completed there is left in the bottom of the test tube a precipitate of the corpuscles of the blood free from all of the blood fluids.

The next step is the preparation of the bacterial emulsion. The culture used for this purpose should at no time exceed twelve to eighteen hours in age. At this age the bacteria do not clump as much as they do when the culture is older. A sterile, 85 per cent. solution of sodium chlorid, is now poured into the tube which contains the culture, and the culture is washed off of the surface of the culture media. If any clumps

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are present they are easily removed by placing the emulsion of bacteria in the centrifuge for a few minutes. This emulsion is then divided into two parts and the tubes labeled "A" and "B." To the emulsion marked "B" there is added an equal quantity of blood serum. After this step the contents of this tube are thoroughly shaken; then this tube is placed in the incubator for fifteen minutes. On the completion of this the tube is removed from the incubator and is then placed in the centrifuge until all cloudiness has disappeared. The supernatent fluid is then removed and an equal quantity of an 85 per cent. solution of sodium chlorid is added to the precipitate, the tube is now shaken thoroughly and is then placed in the centrifuge for ten minutes. This technique is repeated several times. The ultimate result is that the emulsion which originally was composed of blood serum, bacteria and a solution of 85 per cent. sodium chlorid is reverted to the original emulsion composed of bacteria in a sodium chlorid solution. The only difference in the two tubes is that the bacteria of tube "B" have been acted upon by blood serum for fifteen minutes in the incubator at 37.5 degrees C.

On one of the fine capillary pipettes a mark is made which is used as a point of measurement. This pipette is placed in the precipitate composed of the blood corpuscles and by the aid of suction a quantity of the corpuscles are drawn up in the pipette to the mark, the tube is then removed from the blood corpuscles and the contents of the tube are drawn a trifle upward in the tube. The pipette is now placed in the emulsion of bacteria and a suction is again created, drawing the emulsion of bacteria up to the mark. Thus there is now an equal quantity of blood and bacterial emulsion in the pipette.

The contents of the pipette are placed in a clean slide and are thoroughly mixed. On the completion of this the resulting mixture which is now composed of blood corpuscles and the emulsion of bacteria, is again sucked into the pipette and the end of the pipette is sealed in a flame. The pipette is labeled "a" and is placed in the incubator for fifteen minutes. The same technique is pursued with pipette "b."

On the expiration of fifteen minutes pipette "a" is removed from the incubator, the sealed tip is broken off and the contents of the pipette are placed on a clean slide and again thoroughly mixed. Again this emulsion is sucked into the pipette, after which a drop of this emulsion is placed on an absolutely clean slide and a blood smear is made.

The Possible Origin of Opsonins.

That preopsonins are not a product formed in the blood is almost a positive fact. There is no definite relation of opsonins to the leucocytes, nor is the relation affected by blood-forming organs. Re-

searches are at the present rapidly clearing up this question, and at



present the evidence points in the direction that opsonins are the product of muscular or subcutaneous activity. Thus from this evidence one is led to believe that opsonins are the product of muscular tissues and that thence they pass into the blood.

#### Che Possible Fate of Opsonins.

Little is known of the fate of opsonins. It appears, however, that they are eliminated by excretions and secretions. Lawson in his researches found them in the sweat and the urine. Researches have

shown that they are contained in milk in from one-fifth to one-quarter of the quantity found in the blood. Actual experiment has shown that in the first few weeks of the life of an infant no opsonins are present. Much discussion has occurred as to the origin of the opsonins in the infant, and as none seems plausible in any sense I will not discuss the theories which have been advanced.

#### Che Common Organisms Seen in Pyorrhea Alveolaris.

At the present one can not attribute the cause of the suppurative processes observed in pyorrhea to any particular individual organism. It is safe to say that any pathogenic organism has the ability to produce a suppuration of the tissues around the tooth, on the condition that the resistance of the tissues is below normal.

I have in my researches found the following organisms in pus pockets around the teeth, viz.: staphylococcus, pyogenes aureus, albus, citreus and fetidis; streptococcus, diplococcus, a short bacillus which grows on agar, and a large bacillus which also grows on agar, and a number of saphrophites. The staphylococcus fetidis so often seen in this malady is the organism which causes the foul breath encountered in patients suffering from this malady. I have in cases isolated this organism, and after so doing have held the tube in such a position that I could alternately smell the mouth and the tube; this experiment without a doubt proved that the odor of the mouth and the odor which came from the tube were exactly alike. Experiments of this same character were repeated with other organisms, and at no time did I detect this same odor. The staphylococcus fetidis on culture media grows as any of the other staphylococci, and takes on a golden color twenty-four to forty-eight hours after exposure to light. Thus there is but one way left to differentiate this organism, and that is by the odor which it produces. The unknown short bacilli grow excellently on agar. They grow in small, round colonies which have smooth edges and a very glistening surface; the color of the colony is white. The large bacilli seen also grow excellently on agar; the colonies are not as regular as are the colonies of the



short bacillus, but grow very much larger in the same length of time than the colonies of the short bacillus. The surface glistens and the color is white. The diplococcus grows very slowly. The colonies are small and round, having a smooth edge and are white in color. You are also familiar with the growth of the staphylococcus and streptococcus, therefore I will not describe the colonies.

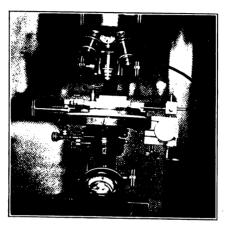


Fig. 1.

# The Technique of Obtaining the Organism for Growth; The Methods of Isolation.

One can not be too cautious in obtaining from the mouth some of the offending organisms. After having tried various methods to obtain only the offending organisms, I found the following technique is very valuable: A pledget of cotton, held in a pair of pliers, is used to carefully wipe off all the saliva and other substances which are present on the tooth and tissues in the immediate area of infection. followed by carefully wiping the parts with another pledget of cotton that has been dipped in alcohol. The next step is to carefully place a small roll of cotton over this area and allowing the lip to return to its normal position, the roll of cotton is held in position; this gives the operator two free hands with which to work, and at the same time keeps the cleansed part from coming in contact with the saliva and the lip. A platinum loop, which is firmly fixed in a glass rod, is now thoroughly sterilized by placing it in a flame and heating the entire length of the loop to a white heat. This being completed the glass rod is held in the most convenient position by the operator. In the opposite hand the



operator grasps the lip and the cotton with a pair of sterile pliers, lifting the lip and the cotton at the same time. The platinum loop is now carefully passed between the tooth and the tissues well into the pocket. After this the loop is carefully removed and a smear is made on a clean slide. This operation is repeated a second time in exactly the same manner, and the contents of the loop are now transferred to the agar tube, which is labeled with the patient's name, the date and the hour.

The tube is then placed in the incubator for twenty-four hours. On the expiration of this time the next step is the isolation of the organism. This can be done in two ways. The first and most used way is the

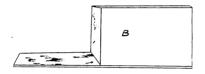


Fig. 2.

inoculation of a petri dish. This method will serve, but it is very slow and is not absolutely accurate. The other is the method of isolation devised by Dr. M. A. Barber, bacteriologist of the University of Kansas.

With this apparatus (Fig. 1) one is able to isolate one organism and with this organism begin a culture. The technique for the isolation of an organism is as follows: A cover slip is selected which fits the glass cell that is used for this purpose. This cover slip is then placed in a solution of sulfuric acid and alcohol; after having been in this solution for half an hour it is rinsed with sterile water, after which it is dried with a piece of soft, clean muslin. The cover slip is then washed off with alcohol and is again dried with the piece of muslin, then, taking the cover slip and carefully holding it between the index finger and the thumb, it is thoroughly wiped with a piece of bibulous paper. The cover slip is now perfectly free from all defective spots on its surface. completion of this technique the cover slip is treated with vaselin, which is spread equally over its surface. The film must be very thin and a great deal of time must be spent in rubbing the surface to get it in this condition. The object of this film of vaselin is to prevent the fluids used in isolation from running at random when placed on the cover slip. The glass cell can be made in many ways. The one used by myself is made of brass; the cell is composed of two sides, a bottom, an end and an open end, through which the pipette is passed (Fig. 2).

After having prepared the cover slip on its surface there is made



a plant of the organism to be isolated; a glass tube is drawn out to such a fineness that a phagocyte will not enter the tube. This tube is now fastened in the isolating apparatus. After fastening the tube in the apparatus the next step is to adjust the end of the pipette. This is done by moving the mechanical stage which holds the cell to the right until the cover slip on the cell is in one-half of the field of the condensed light. The tube is then moved upward by the screw until the end of the pipette is in focus with the cover slip. The tube is then again moved downward to clear the cover slip. The mechanical stage is now moved to the right, and the colony to be studied is located. As soon as this has been done the pipette is again focused, and the selection of the most classical organism is begun. As soon as a very good specimen is found the pipette is

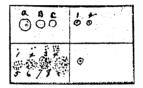


Fig. 3.

racked upward by the screw, and by creating a suction in the tube the organism is sucked into the pipette. After this has been done the pipette is again racked in the clear, the mechanical stage is moved and the organism is blown out of the tube into a salt solution on the cover slip. organism is again drawn into the pipette, and is transferred to another drop of salt solution; again the organism is thoroughly washed. technique is repeated several times, after which the organism can be used to inoculate an animal or a test tube containing culture media. In this manner one is able to study the development of an organism; commencing with one organism, and using this organism as the unit of the experiment, one can accurately report the effect of this organism on an animal or the exact growth noted on culture media. Another advantage in the use of this apparatus is that one can determine accurately the rate of multiplication of this organism, and from this experiment can by the formula used in trigonometry determine the number of organisms there will be present after a known time. The number of organisms can also be determined by geometric progression.

The cover slip shown in Fig. 3 shows the progression of the multiplication of an organism reversed. That is, in the first field there is one, in the second two, and in the third four, and so on, until the eighth division in which there are 128 organisms.



### Che Technique for Making a Bacterial Vaccine.

To 100 c.c. of ordinary tap water there is added 0.85 grams of sodium chlorid. Sufficient time is allowed the sodium chlorid to dissolve, after which a graduated quantity is placed in test tubes, and the mouths of the tubes are plugged with cotton. After this the tubes are placed in the sterilizer for one hour for three consecutive days. By this there is now a sterile solution of sodium chlorid contained within the test tubes.

The best results obtained in the manufacture of the vaccine is when

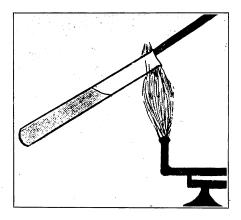


Fig. 4.

fresh cultures are used, that is, a culture which is not more than twelve to eighteen hours old. A culture which is older than this does not wash off of the culture media very well and in addition to this difficulty it will be found that the old cultures clump a great deal; this causes a great deal of unnecessary work, because after thoroughly shaking the tube for a long time the contents of the tube are not properly mixed, and the vaccine can not be relied upon as to the number of bacteria per c.c. After this step the next in order is to seal the tube (Fig. 4). This is done by placing the tube in a blowpipe flame until the glass commences to get soft, then a piece of glass tubing is welded to a point on the test tube, and the test tube is heated at a point some distance from the point which was fused with the piece of glass tubing. As soon as the glass of the test tube becomes soft the end of the tube is drawn out into a fine point, after which it is broken and the end is then sealed (Fig. 5). The tube is then allowed to cool, after which the emulsion contained within

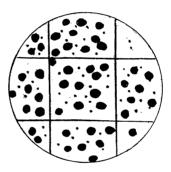


the tube is thoroughly shaken. The object of the shaking is to thoroughly mix the emulsion evenly. After this step the fine pointed end of the tube is inverted and the fine end of the tube is filled with the emulsion. After so doing a file mark is made 20 to 21 mm. from the end of the drawn tube, and that portion which lies between the file mark and the end is broken off.

This having been done the open end of the tube is again sealed, and the tub is immediately placed in a water bath, the temperature of which



FIG. 5.



F1G. 6.

never reaches above a maximum temperature of 60 degrees C. and a minimum temperature of 58 degrees C. The tube is kept in this bath for one hour. At the expiration of this time the contents of the tube are sterile. That portion of the tube which was broken off is used to determine the number of organisms there are present in 1 c.c. of the emulsion which is contained within the test tube.

# Standardizing the Uaccine.

A piece of clean muslin is now wrapped around the finger or the thumb, after which a sharp bistoury is used to puncture the skin at the base of the nail; soon after puncturing the skin a drop of blood ap-

pears which is carefully sucked into an opsoninizing pipette, after which an equal quantity of the emulsion contained in the broken off end of the tube is sucked into the pipette. The contents of the tube are now placed on a clean slide and are thoroughly mixed. After the contents of the



tube have been thoroughly mixed the usual technique for making a blood smear is pursued. The next step is the counting of the number of bacteria and red blood corpuscles there are present in twenty fields (Fig. 6). A chart is then ruled (Fig. 7) and the number of organisms and red blood corpuscles is at each count recorded. After twenty counts have been made, the column of red cells is added and the column of bacteria is added. Then arranging this result in proportion (No. of Red Cells: No. of Bacteria::5,000:x). The quantity is then divided

BL	OODCELLS	BACTERIA
1	14	10
2	18	12 4 15
3	6	4
4	16	/5
5	20	/0 9 /4 /0 5
6	/0	9
7	17 16 7 15 19 21	14
8	16	10
9	7_	5
10	15	/2
//	19	18 10 6
/2	2/	10
13	16	6
14	16 12 14 20	18
15	14	10
16	20	18
17	19	17
18	/2	18 17 18 21
19	19 12 17 15	
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18	15	/3
Total 314		239

Fig. 7.

by the desired dilution (that is in the emulsion), and the result of this division shows the quantity of a salt solution which must be added to obtain approximately the number of organisms per c.c.

Having completed this technique, the emulsion is now added to another sterile solution, to which there has been added I to 2 minims of lysol; the object of the lysol is to prevent the growth of saphrophites. The vaccine is now made and the approximate number of organisms per c.c. is known.

Another method of standardizing the vaccine, and one which is not as long as the method just described, is as follows: The first step is to prepare a very weak solution of methylene blue; after this has been done a white blood counting pipette is dipped into the broken off end of the



tube which contained the emulsion of bacteria, and a known quantity of this emulsion is drawn into the pipette. This is for the operator to decide. For example, let us say, up to the pipette mark, marked one-half; after this step the pipette is then dipped into the methylene blue solution and the remaining portion of the tube is filled to the final mark. The pipette is now thoroughly shaken and is then set aside for ten minutes, after which a few drops are expelled from the pipette; this having been done a drop is cautiously dropped on the counting chamber of a blood-counting apparatus.

A cover slip is placed over this drop and the drop spreads over the ruled surface of the counting chamber. Fifty squares are now counted. The dilution being one-half the sum of the contents of these squares is multiplied by 800,000. The answer obtained by this multiplication shows the number of bacteria which are contained in I c.mm. Having learned the number contained in I c.mm. the dilution is made in exactly the same manner as in the method pursued by Wright.

### Che Technique of Making the Opsonic Index.

The first step in the technique for making the opsonic index is the preparation of a I to  $I\frac{1}{2}$  per cent. solution of sodium citrate and an 0.85 per cent. solution of sodium chlorid, in filtered or distilled water.

The next step is the collection of the blood. A clean muslin bandage is tightly wrapped around the thumb, and a puncture is made with a sharp sterile bistoury. A small test tube is now placed at the point of the puncture and I c.c. of blood is allowed to flow into the tube. After the collection of the blood has been completed 8 to 10 c.c. of the sodium citrate solution is added, the tube is now thoroughly shaken, mixing the blood and the sodium citrate. As soon as this has taken place the tube is then placed in the centrifuge until all of the corpuscles are seen in the bottom of the tube and the supernatent fluid is clear. pipetted off all of the supernatent fluid 8 to 10 c.c. of the sodium chlorid solution is added, and the tube is again thoroughly shaken, after which it is again placed in the centrifuge for ten minutes. The supernatent fluid is then removed with a pipette and the same quantity of sodium chlorid is again added, using the same technique as in the first washing. object of this last step is to thoroughly wash the blood corpuscles. next step is the method of obtaining some of the patient's blood serum and some blood serum from another individual whose refraction is high to the organism which is to be used. The blood for this purpose is collected in a pipette, which has been drawn into the shape of a bulb with two fine points, one of which has been at a right angle to the tube.



After having drawn the pipette for the collection of the blood, the next step is to wrap a piece of clean muslin tightly around the patient's finger, then with a sharp bistoury puncture the skin at the base of the nail; almost immediately the blood commences to flow; the point of the pipette which is bent at a right angle to the bulb of the pipette is now placed at this point, and by capillary attraction the blood is drawn in to the tube (Fig. 8). The same technique is pursued to obtain the individual's blood which is refractory to the organism which is being used.

After the blood has been collected the tube is then sealed and is placed in the incubator to assist the process of coagulation for ten min-



Fig. 8.

utes. The tube is then removed from the incubator and is placed in the centrifuge until the blood serum and the blood corpuscles have been thoroughly separated.

The next step is to have some of the emulsion of live bacteria in a salt solution which has been grown from the pus taken from the diseased part of the patient. There are now four solutions before us on the laboratory bench, namely, the washed blood corpuscles, the patient's blood serum, the normal blood serum, which is refractory to the organism, and an emulsion of the organism against which the index is to be made.

A mark is now made with a grease pencil about five centimeters from the end of the opsoninizing pipette. The object of this mark is to act as guide to the quantity which is sucked up into the pipette. At the large end of the pipette there is attached a rubber nipple which is used to create a suction in the pipette. The pipette is now placed in the tube containing the washed corpuscles, and a quantity is sucked into the tube to the mark; then allowing a trifle more suction the corpuscles are sucked a little further up into the tube. This having been done, an equal quantity of the emulsion of bacteria is sucked into the pipette and then a little further and the blood serum of the patient is then sucked into the tube. The



contents of the pipette are then sucked one centimeter from the end of the tube, and the tube is sealed, after which it is placed in the incubator for fifteen minutes. This tube is labeled with the patient's name to prevent any error. The same technique is pursued with the blood of the individual whose refraction is high.

On the expiration of fifteen minutes the pipette marked "A" is removed from the incubator and the end is broken off. The contents of the pipette are now expelled upon a clean slide and are thoroughly mixed. After mixing has been completed a blood smear is made of the contents of the pipette (Fig. 9). The blood smear is then stained with Wright's stain, and the process of counting the polymorpho-nuclear leucocytes is



Fig. 9.

commenced. Fifty fields are counted and the number of bacteria contained within the leucocytes are recorded. Make an addition of these counted and then multiply by two, after which two places are pointed off; on the completion of this step one knows approximately the contents of one hundred fields. The same technique is pursued with the blood of the individual of high refraction. On the completion of the count the phagocytic index of the patient is divided by the phagocytic index of the individual whose refraction is high, and by this division one determines the opsonic index of the patient.

### Che Value of the Opsonic Index in Determining the Dose.

The opsonic index in many cases is a very good guide to assist in determining the correct dose. This can be done before or after the treatment is commenced. One can at intervals after the treatment is commenced make the opsonic index if the patient is improving as satisfactorily as desired.

In this case one of two results will follow: (a) The patient is receiving too large a dose and is, therefore, in a negative stage; if this is found to be the case the dose at once is to be reduced. (b) The dose is too small, and should at once be increased until the patient has reached the maximum.



### Che Creatment.

The vaccine having been made and the patient's index having been worked out to the organism of the vaccine, the next step is the vaccinating of the patient. Before vaccinating the patient it is discrete to learn the occupation of the patient; that is, if he is a clerk, and if so if he writes with hand, it would inconvenience him a great deal to vaccinate him in the After having obtained this information the patient may be vaccinated in the opposite arm, or on the belly, or between the scapulæ. Any place will do as a point of vaccination. Having selected the point at which the patient is to be vaccinated, the next step is to saturate a piece of cotton with alcohol and then thoroughly rub the point of insertion. The patient is then requested to hold the cotton over this point. hypodermic syringe is now sterilized with alcohol. The most desirable syringe for this purpose is the "Burrough's Welcome" syringe, first, because it is so constructed that if any part is broken it can be replaced, and, second, because with this syringe one can use a platinum needle; this last is a very material advantage. The hypodermic syringe being sterilized the next step is to draw into the syringe a known quantity of the bacterial vaccine which is to be used. As containers for this emulsion I have used bottles which were covered with a soft rubber cap, and I have also used small test tubes, the ends of which are sealed after being charged with the vaccine. The hypodermic after being filled is held in the most convenient position for the operator, and the cotton is removed from sterilized point, immediately after which the point of the syringe is passed into the tissues, the contents of the syringe are expelled and the operation of vaccination is completed. The patient is then instructed to call at the office three days afterward.

#### Clinical Evidence Presented after Vaccination.

After the first vaccination there is little evidence of improvement in the condition of the patient's mouth. Inquiry as to the reaction is generally as follows: About three hours after being vaccinated the arm became very sore and commenced to swell, the swelling soon reached its maximum; but the soreness extended over a period of twenty-four to forty-eight hours. The soreness then disappeared very rapidly, and on the third day practically all soreness was absent. The second vaccination seldom produces the soreness that is seen in the first vaccination, and the evidences of improvement begun. The third vaccination is less severe than the second, and as treatment continues the reaction becomes less and less until the patient suffers no inconvenience whatever



after being vaccinated. After the fifth vaccination one generally sees marked improvement of the patient's mouth, and from this vaccination the improvement is gradual, but is very pronounced. All inflammation and soreness rapidly disappears, and the pus commences to diminish in quantity. According to my notes I find that in the average number of cases the pus ceases from the seventh to tenth vaccination. I have cases recorded in which it required sixteen and twenty days to get a result. Thus summing up the evidence, after vaccination, the following points are learned: The greatest soreness, as result of vaccination, occurs after the first vaccination. The inflammation and the soreness are reduced to the minimum after the fifth vaccination, and from this time on are rapidly disappearing, and from the seventh to the tenth vaccination the pus is disappearing, and in many cases has ceased.

### Technique for Cleaning the Teeth and the Removal of the Calculus.

The technique for cleaning the teeth is very simple, and does not require any great skill.

The first step is to paint the gums and the teeth with a saturated solution of iodin; a roll of cotton is placed between the parts painted, and the cheek and lips, to keep these parts from coming in contact with the parts that have been painted. The next step is to remove all of the visible calculus from around the necks of the teeth with dull instruments, being very cautious not to disturb the tissues which lie below the deposit. This having been completed a preparation of lactic acid of my own formula is used. (At the present, gentlemen, I am not prepared to report on this formula.) This preparation is carefully forced between the neck of the tooth and the tissues and is allowed to remain for two to three minutes. It is then neutralized with sodium carbonate, after which the pocket is thoroughly washed with water. The process of syringing is best accomplished with a hypodermic syringe and needle. After having thoroughly washed the pocket a 10 per cent. solution of zinc chlorid is carefully forced into the pocket with a very fine pointed stick. This is followed by another painting with iodin, and the next tooth which contained calculus is treated in exactly the same manner. On completing the process of removal of calculus the next step is the polishing of the teeth. At no time should the dental engine be used for this operation; orange wood sticks cut at various angles and in the form of flat surfaces and half round surfaces and points are best. A small quantity of pumice is then mixed with glycerin to which there is added some iodin. small bolus of this paste is picked up on the end of an orange wood stick



and is applied to the tooth which is to be cleaned; the process of rubbing should be from the cutting edge or the masticating surface of the tooth to the gum margin; every side of the tooth positively must be polished, and, therefore, the process of cleaning is a very tedious one.

Reports of Cases. Case I. Patient, Mrs. S., age 28, married.—Two years ago the patient observed soreness and swelling of the gum tissue on the labial surface of the upper left central incisor. The condition, she reports, became

worse from time to time, and occasionally the tooth became very sore and loose. It was impossible for her to occlude on the tooth when in this condition. Six months after the first appearance of the swelling and soreness she called on her dentist who informed her that she had pyorrhea, and that a cure for this malady was unknown. The patient, as a result of this information, paid no more attention to the tooth, waiting patiently for the tooth to fall out. Three months after she had paid her last visit to her dentist the tooth became unbearably sore, and this time she called on her physician for advice. Her physician in turn referred her to me. At this time I found on making a careful examination of the gums that not only the tissue of the central incisor was involved, but that the left upper canine, the right upper lateral incisor, the right premolar, the left lower first premolar and the left lower canine were also involved.

While examining the patient's mouth I detected that the patient's breath had a sweetish quinine odor, which is diagnostic of diabetes. At times the saliva showed a slight acid reaction to litmus. Examination of the urine showed sugar, no casts, no albumin, no blood, salts normal. White blood corpuscle count 11,250. The patient's general condition was very bad. After making the analysis of her urine I referred her to her physician for treatment. Pressure at any point of the gum around the diseased teeth caused a large quantity of pus to exude from the space between the tooth and the tissue. An examination of the pus from these areas showed a mixed infection composed of staphylococcus pyogenes aureus, staphylococcus pyogenes fetidis, and a short bacillus which is at the present unnamed and unidentified. A culture was grown from this pus and the same organisms were present. The patient's index was made to the organisms, and in each case it was shown according to the index that the resistance was lowered to each organism. A vaccine was made, using the general technique as described in this paper and according to the standardization the vaccine contained 350,000,000 organisms of the mixed culture per c.c. The first dose given was one c.c., which was injected into the arm of the patient. The patient on her presentation for the second vaccination reported that her arm was very sore for fortyeight hours after the vaccination. An examination of the arm was made



and the parts showed no infection. This soreness is characteristic of the reaction of the vaccine. Before vaccinating the patient the second time the index was made and according to the index the patient was not suffering from a negative reaction; the dose was now increased one minim. Third vaccination: At this time the patient reported that the central incisor did not inconvenience her as much as in the past, and that a great deal of the soreness had disappeared. Fourth vaccination: At this vaccination I increased the patient's dose one minim. When the patient presented herself for the fifth vaccination I observed a marked improvement in the general condition of the tissues around the diseased teeth, and also that the quantity of pus was greatly diminished; a smear from the part showed great numbers of phagocytes in the region, many of which were rapidly attacking the invading organisms. The improvement of the patient from this time on was rapid and all evidence of soreness ceased to exist after the tenth vaccination. The vaccinations in this case were given every fourth day up to the seventh vaccination, after this time the time was extended to one week. The maximum dose in this case was 500,000,000 organisms of the mixed culture. Time required to treat this case was sixteen weeks.

### Present Symptoms, Subjective.

At the last visit to me she informed me that the general condition of her mouth was about the same as it was before the malady commenced. She also informed me that the fetid breath of the morn-

ing is no longer present, and that when she now brushed her teeth it in no way caused her any pain, and that her gums now felt as hard and firm as they felt before her teeth became sore. The central incisor which had caused a great deal of inconvenience in no way did so any more, and the tooth felt quite firm.

### Present Symptoms, Objective.

The patient has been under my personal observation for six months since the last vaccination was given, and there has been no recurrence of the malady up to the present. The condition of the cen-

tral incisor, as reported by the patient, is true, and for verification of this fact I refer you to Dr. Dewey; also Dr. Root, of Kansas City, who saw this case with Dr. Dewey before and after treatment.

## Cleaning of the Teeth.

The teeth in this case were cleaned with iodin, pumice and an orange wood stick. All of the fine spicules of calculus were removed with dull scalers, and to make doubly sure that no calculus remained,

a preparation of lactic acid of my own formula was used. I am at this time experimenting with this preparation, and, therefore, will not give



you the formula. This much I can assure you, that when this preparation is used and is neutralized it cleans all parts thoroughly of all inorganic deposits. After this treatment the patient was dismissed.

Patient, Mr. P., age 22, single.—The patient six months prior to January 12 observed that his lower teeth extending from the right lower canine to the

left lower premolar, were very sore on pressure, and that the tissue overlving this area was swollen. Thinking the condition not a serious one he gave it no attention. Three weeks after the first symptom the condition became very pronounced; the pain at this time was excruciating and unremittant. He called upon his dentist who after a careful examination informed him that he had pyorrhea, and that his case was incurable, and advised the patient to have the teeth extracted and a bridge put in. The patient not being satisfied with the decision of this dentist called upon another, and the same decision was rendered by dentist number two. The patient not being satisfied with the decision of the dentists he had visited called upon his physician, and the physician put him upon a diet; he also instructed him to use a mouth wash. This the patient did and after a period of time noted that he in no way was any better off than he was in the beginning. Being on friendly terms with a medical student he asked the student if he appeared at the clinic if he would introduce him to a good surgeon. This the student did. The surgeon, after carefully examining the young man's mouth, referred him to me.

An examination of the patient's gums was made by myself, and I soon observed that not only were the teeth involved, extending from the right lower canine to the left lower premolar, but also the right upper central incisor, the left upper lateral incisor, and the left upper canine. The space lying between the point of the lip and the chin was absolutely invisible because of the swelling of the tissues.

An examination of the saliva showed a slight acid reaction at times. Examination of the urine normal. White blood corpuscle count 13,250. The general condition of the patient was bad. Because of the soreness of the teeth he could not masticate his food properly, and because of this suffered considerable inconvenience with dyspepsia. Pressure at any point on the diseased gums causes large quantities of pus to exude from the space between the tooth and the gum. An examination of the pus from these parts showed staphylococcus pyogenes aureus, a streptococcus, a short bacillus and a saphrophite. A culture was grown from this pus, and the same organisms were present. The opsonic index was then made to ascertain what organism was most responsible for the diseased condition. According to the index the staphylococcus pyogenes aureus and the short bacillus were responsible. A vaccine was made



in the usual way and was standardized. According to the standardization the vaccine contained approximately 400,000,000 organisms of the mixed culture per c.c. The first dose given was one c.c. hypodermically in the arm. The patient on presenting himself for the second vaccination informed me that his arm was very sore for twenty-four hours after being vaccinated; an examination of the arm showed no infection. To ascertain if the patient was suffering from a negative stage, the opsonic index was again made, and according to the index he was not. This being the case the dose was increased one minim. After the second vaccination the soreness was not as severe as after the first vaccination. Third vaccination: At this time the parts showed signs of slight improvement, and the dose was again increased one minim. Fourth vaccination: At this time the parts showed a very perceptible improvement and the patient remarked that his mouth felt much better. Fifth vaccination: At this time the patient came into the office very much pleased, the swelling had diminished very appreciably and the soreness was rapidly disappearing. The dose was again increased one minim. Sixth vaccination: The improvement of the patient's mouth was most marked at this time. The tissues were rapidly returning to normal, and the quantity of pus was now being rapidly diminished. The concavity which lies between the point of the lip and the chin was again being restored, and the patient was able to masticate his food better than he had been able to do for over seven months. The dose was again increased one minim. Seventh vaccination: Improvement still going on. Dose the same as in the sixth vaccination. Eighth vaccination: Improvement about the same as in the seventh, except that the quantity of pus is diminished. Ninth vaccination: Improvement about the same as in the eighth vaccination, pus at this time is hard to obtain. Tenth vaccination: The inflammation has by now ceased to exist and the quantity of pus has been reduced so that it is very difficult to get enough to make a smear on a cover slip for examination. The process of vaccination was continued for eight vaccinations after all pus and inflammation ceased to exist. The maximum dose in this case was 800,000,000 organisms of the mixed vaccine. The time required for treatment was fourteen weeks.

Present Symptoms. Subjective. The patient has been under my personal observation for six months since treated and no recurrence of the malady has appeared up to the present. He informed me that he is now able to use the teeth as

well as he did before the treatment began, and that at no time was he inconvenienced. He also informed me that his gums are as firm and as



hard as they ever were before the malady commenced, and that his mouth at present feels absolutely normal.

Present Symptoms, Objective. The condition of his teeth, I found on examination, is exactly as reported by the patient and the statement will be verified by Dr. Dewey. This case was of extraordinary interest to me because of the

large quantity of pus present and the extensive inflammation.

Cleaning of the Teeth.

The teeth in this case were cleaned with iodin, pumice and an orange wood stick. All of the fine spicules of calculus were removed with dull scalers, and to make doubly sure that no calculus remained,

a preparation of lactic acid of my own formula was used. After this treatment the patient was dismissed.

I have the reports of many cases which I could read to you, but this would only be a waste of time as they all are practically the same.

Conclusion. The evidence I have presented to you is not based upon hypotheses, but upon data collected from the monographs of able workers and also from my own notes, compiled by myself.

There is no longer any doubt that the value of bacterial vaccines has been established, and by the untiring work of the world's most able investigators.



## Some Points of Equal Importance to both the Dentist and the Rhinologist.

H. Arrowsmith, M.D., Brooklyn.

Read before the Second District Dental Society of New York, November, 1908.

While the title of my paper would imply, at the first glance that the subject might be covered in a very short time, as I have thought it over more carefully in its various aspects, the matter has so increased in magnitude that I should be forced either to tax your patience unduly by the exhaustive considerations and references to literature that its importance fully justifies, or else to dismiss it, after merely drawing your attention to some observations and convictions resulting from the work I have been doing for the past twenty years in rhinology and its allied fields. I choose the latter alternative and rely on the gentlemen present to elaborate in the discussion those points which I have omitted, or to which I have failed to accord their due prominence.

I now realize that many of our disappointments and failures have been due to an incomplete grasp of certain things which have lain outside the boundaries of our own special provinces. Therefore I believe that no paper of this kind can be without value, however crude and superficial in its handling, if it only serves to show us that no department of medicine, no specialty, can be entirely isolated, and that the field of the dentist, the rhinologist, or the internist cannot be scientifically or successfully cultivated alone, but that we are mutually dependent on each other to a very great degree.

Your particular province in medicine has made marked strides, and has been greatly broadened during the last two decades, to the pronounced present and future benefit of your patients, especially in that part of your work which relates to dental orthopedics—orthodontia.

When its importance shall have been more widely appreciated, I venture to prophesy that it will materially lessen the activities of the reparative and prosthetic dental practitioner. I am almost inclined to hazard the prediction that if the orthodontist and the rhinologist work intelligently together, extractions, fillings, artificial dentures, and so on, will, in the future, be so uncommon as to be interesting as curiosities. To carry this line of thought still further, I believe that if the rhinologist appreciates his opportunity to the full, and is able to see his patients sufficiently early in life and control them (and their parents), he can, in a great measure, eliminate the necessity for the orthodontist and the general practitioner of dentistry. Such a condition of affairs, however,



will arrive about the time of the millenium, and it is more to the point to give some consideration to actual conditions as they confront us to-day.

### Causes of Oral Deformities.

As a starting point for my remarks, let me state that practically all non-congenital malformations and diseases of the mouth and teeth are due to nasal obstruction and mouth-breathing, and that,

with the exception of the occasional and (for our purpose) negligible cases of congenital nasal atresia, these conditions are invariably due, particularly in early life, to limphoid growths in the naso-pharynx—the so-called "adenoids." Inferentially, re-establishment of normal nasal respiration by removal of this hypertrophied tissue, will prevent the developmental malformations of the jaws and later on pathological changes in their contents. It is, of course, quite obvious that in order to accomplish any such results, extirpation of these masses must be done early in life—before the completion of the first dentition. Objections to such a procedure, as a routine, are now almost insuperable; ignorance, carelessness, fear, and prejudice on the part of parents are potent obstacles, and above all else, the pernicious doctrine, too often inculcated by members of the medical profession, that these conditions are among those which children may be expected to "outgrow." As matters stand at present, only the worst and most aggravated cases of nasal obstruction are brought to us in infancy; for instance, when a nursling is unable to obtain sufficient nourishment, or when the difficulty in breathing is so extreme as to seriously alarm the parents. I have operated at two months, but as a rule I concede that any operation, when avoidable, is not to be recommended in very young infants, who bear shock and hemorrhage rather badly. These objections do not hold after the third year, though even at this time parents are apt to insist that the child is too young to be operated on, and the necessary procedures are often delayed until considerable mischief has been done and bad conditions in the mouth have become firmly established.

Some years ago I tabulated the findings in two thousand consecutive nose and throat patients of all ages, with the result that 858, or 42.09 per cent., were shown to have some pathological condition in the lymphoid ring; 701, 3.05 per cent., had distinct hypertrophy of the pharyngeal tonsils; 333, 16.06 per cent., had also hypertrophy of the faucial tonsils, and in only 101, 5.05 per cent., were these structures involved alone, showing that in the majority of instances the faucial tonsils became implicated subsequent to, and as a result of, the overgrowth of the pharyngeal lymphoid tissue.

Bearing directly on our subject, this tabulation also showed that most of these cases presented between the sixth and ninth years—when



permanent dentition was in active progress; when the faults in development of the upper jaw resulting from mouth-breathing were beginning to be pronounced—these developmental abnormalities in turn reciprocally accentuating the tendency to nasal obstruction.

Here, then, is the particular period when the orthodontist and the rhinologist should be in close alliance. If the exciting cause is still operative, it is obviously impossible for the orthodontist to accomplish satisfactory results. On the other hand, not infrequently, after the most careful clearing out of the naso-pharynx, mouth-breathing will continue until the orthodontist corrects the oral conditions which it has produced.

In a very voluminous literature there is the usual difference of opinion as to which condition precedes the other—nasal obstruction or malformation of the hard palate. Personally, I am convinced that oral orthopedics are vitally essential in the prophylaxis of certain morbid conditions of the nasal chambers. I believe that almost all deviations of the nasal septum, if not traumatic in origin (and few of them are), in themselves a prolific cause of mouth-breathing, have had their start in faulty development of the upper jaw, which in turn has been primarily due to naso-pharyngeal growths. Most of these deformed septa come under observation, as might be expected, in early adult life, and I am sure that many could have been prevented by orthodontic interference at an appropriate age.

The mechanics of this origin of deformities of the nasal septum certainly seem clear enough. It depends both on the difference in atmospheric pressure in the mouth and nasal chambers, which is the exact reversal of the normal, and the abscence of the powerful usual and natural action of the muscular mass making up the tongue. These conditions give the start in the wrong direction, and "as the twig is bent, so will the tree grow."

## Influence of the Congue.

The tongue under normal circumstances, when the mouth is closed, practically fills that cavity, and exerts a strong muscular pressure in the directions of natural development and expansion of the sur-

rounding osseous tissues. In the mouth-breathing child, the tongue is often partially protruded; it is almost never in contact with the upper alveolar processes, so that its valuable aid in the proper molding of these soft bone structures is entirely lost. The excessive intra-oral air pressure and its diminution within the nasal chambers tends to raise the hard palate to the prejudice of the vertical space in the nose itself; thus the septum, as it grows, must fold on itself and contribute by its distortion to the existing nasal obstruction, and by the production of vasomotor disturbances in the intra-nasal soft structures. The hard palate



being arched and high, the alveolar processes are brought abnormally close together, and subsequent imperfect dental occlusion is the inevitable result. The maxillary sinuses develop abnormally to a degree corresponding to the deformity of the upper jaw, and are possibly in this way rendered more subject to later disease.

### Evil Results of Malocclusion.

Imperfect dental occlusion means faulty mastication, impaired digestion and nutrition, diminished resistance to disease, early deterioration of many organs, and possibly premature death.

Dental caries results very commonly from mouth-breathing. Bogue, in an admirable paper, read before the Pediatric Section of the American Medical Association, in 1907, calls attention to the fact that the teeth are normally self-cleansing—that caries invariably, or almost so, results from external infection and attributes the most important role in its causation to mouth-breathing.

Carious teeth have many times infected the adjacent soft parts giving rise to profound septic intoxications, which have jeopardized the life of the patient, and in some instances there have been fatal terminations. General tuberculosis with death has been traced to caries of the teeth, and it is a frequent cause of that most distressing and dangerous malady, Ludwig's angina. As laryngologists, in the preparatory treatment of patients for operations on the throat, we insist on the paramount necessity for complete asepsis of the mouth and teeth, without which our intervention would become fraught with danger and likely to fail.

Malformations of the jaws interfere with proper voice production and may thus, as Makuen has pointed out, exert a most pernicious influence on the intellectual development of the child—making it morbid, self-conscious, backward and averse to mingling with its companions.

The grosser congenital malformations such as hare-lip, cleft palate, the inverted eruption of the teeth, dentigerous cysts, and the like, while of great clinical importance, are scarcely germane to the subject under immediate consideration, and do not come within the special province of these remarks.

Recent researches into the composition of the saliva in health and disease, seem to show that dental caries may result from general biochemical disturbances, through this secretion and, conversely, that such changes in this fluid may also unfavorably affect the general health. Here constitutional treatment, the correction of dietetic errors, and due attention to proper elimination is of the first importance. Such investigations will undoubtedly in time clear up obscure points in the etiology of salivary calculus, Rigg's disease, and similar affections.

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## The Antrum of Bighmore.

Now we come to a territory which both the dentist and rhinologist have claimed as their own—the maxillary antrum. By reason of its location, and of the influences which are liable to produce

disease of its structures, it is, of course, of interest to us both. So it may be of value and instruction to recall to our minds the disorders that we are liable to encounter in this sinus. I shall enumerate casually some points in the etiology, diagnosis and treatment of its diseases which I have found of practical help in dealing with these morbid conditions.

Of course, we are all familiar with the normal anatomy of the region under consideration, but, with your permission, I will hurriedly go over the salient points in order to make clear some deductions that I may draw later on

The antrum of Highmore is the largest of the accessory sinuses of the nose, and is really simply a space in the superior maxillary bone. Its configuration is irregularly cubodial. Its roof is formed by the floor of the orbit; its floor by the alveolar process; its outer and anterior wall by that portion of the maxillary bone that forms the cheek; its inner boundary is the external wall of the nostril; its rear limit is made by the coalescence of the lateral walls, and also, to a certain extent, by the palatine process of the sphenoid bone.

Occasionally the antrum extends to the inner side of the alveolar process, when its floor is formed by the hard palate. On the inner surface of the floor of the antrum are numerous protuberances marking the location of the roots of the teeth, with corresponding depressions between them. Not infrequently the roots of the teeth project into the cavity of the antrum and are covered only by periosteum and mucous membrane. The size of the sinus varies considerably; it may be of such an extent as to be in relation with all the teeth, from the canine to the wisdom. Twice I have failed to find any cavity after the most careful search, and the variations in size and shape are undoubtedly dependent on peculiarities of development which have already been mentioned. On the posterior wall are the dental canals transmitting the posterior dental vessels and nerves.

We often observe more or less complete septa subdividing the cavity of the antrum; such irregularities are undiscoverable by external examination, but are of the greatest clinical importance, as they frequently are responsible for the failure of certain methods of treatment, as we shall see hereafter. The lining of the cavity is of mucous membrane, covered throughout its greater part by ciliated epithelium and containing the glandular cells which furnish the necessary secretion. The nerves are branches of the orbital and second division of the fifth,



and the blood supply is derived from the internal maxillary artery. The antrum communicates normally with the nostrils by the ostium maxillare, a large irregular space in the inner walls, which is almost covered by mucous membrane. Complete occlusion of this opening by disease within the nostril may be the cause of serious antrum trouble. Physiologically the antrum serves to increase vocal resonance, and perhaps to add to the strength and, at the same time, decrease the weight of the bony structures of the face.

The literature of sinus pathology has in late years increased so enormously that a detailed consideration is not possible here. It may be said, however, that, contrary to older views, comparatively very few cases of true maxillary sinusitis are strictly of dental origin. Mahu (Annales des maladies de l'oreille, etc., Aug., '05), after an exhaustive examination of one hundred antra, post mortem, found not one case of sinusitis of dental origin. He did find, however, cases of empyema originating in the teeth, and the distinction between the two conditions is of the utmost clinical importance. In the one (true sinusitis) the antral walls are diseased and secrete the pus; these cases are the most common and are almost invariably caused by nasal infection. In the other, there is a breach of continuity in the walls of the sinus through which pus is admitted from without, as in alveolar abscess which has perforated into the antrum. This condition is precisely similar to that which Hajek has appropriately called "pyosinus," by which he means to imply that the antrum has become a reservoir for the pus which has been formed in the higher-lying accessory sinuses, the frontal and ethmoid, and which has drained into it without any intrinsic disease of its own structures. Of course, such conditions can not be protracted indefinitely without structural change and the establishment of pathological states of the antrum itself. A conception of the original difference is essential in the selection of a proper method of treatment.

The usual causes of antral suppurations and inflammations are infection by various pathogenic germs entering by way of the nostril 'and ostium maxillare. A smaller number result from constitutional diseases: syphilis, tuberculosis and from new growths, benign and malignant, Sinus suppurations occur in the course of all exanthemata and acute infections, notably influenza, in gonorrhea and in various chemical toxemias such as lead poisoning.

Almost every bacterium of which we have knowledge has been identified in the secretions of diseased sinuses.

The inflammatory diseases of the antrum may be acute or chronic, suppurative or non-suppurative, active or latent.

Acute catarrhal troubles are invariably attributed to an extension



of a similar process in the nose, or may result from the effects of obstruction of the normal opening and the consequent irritation from retained secretion and disturbed circulation. An acute catarrh usually terminates spontaneously and the lining membrane is restored to a condition of health; it may, however, be the starting point of a chronic catarrhal inflammation, or may produce fibrous adhesions between the antral walls, cysts, exostoses in the surrounding bone tissue, or bony formations in the mucous membrane, or it may terminate in an acute suppurative process.

A chronic catarrh is, of course, consecutive to an acute and its results may be the formation of cysts of the lining mucous membrane, polypi and osteomata, or, from incidental bacterial infection, the process may take on a suppurative character and a typical chronic abscess may result. The cysts which occur are true retention cysts, being formed as a result of the obstruction of the ducts of the muciparous glands; they, at times, become so large as to completely fill the cavity of the antrum and by pressure cause absorption of its bony walls. The cyst contents may eventually become purulent and give rise to a general infection of the antrum, or micro-organisms may escape from them, and, in their turn, produce general suppuration. Dermoid and dentigerous cysts are occasionally encountered—ordinary dental cysts more frequently. Acute suppurative processes often recover spontaneously or by means of mild intra-nasal treatment or direct medication of the cavity.

The history of chronic suppuration serves in a great measure to substantiate the contention that these cases are not often of dental origin. We commonly encounter them in patients whose teeth are perfectly healthy and again we perhaps even more often observe the same clinical symptoms in the other sinuses where a dental causation is out of the question. Your own observations demonstrate that there is a great disparity between the frequency of dental caries and the occurrence of antral empyema. Various conditions may complicate an abscess in this location. Numerous foreign bodies have been found in the antrum, and there have been many reports of vicarious dentition within the cavity.

### Diagnosis of Antral Disease.

In the diagnosis of antral disease pain is a very unreliable symptom; its occurrence and intensity is directly commensurate with the degree of obstruction in the natural outlet. If nasal drainage is free,

pain is absent and vice versa. A sensation of fulness and pressure over the antrum and tenderness of that region are frequently quite pronounced. Neuralgic affections of the fifth nerve are commonly met with, and pain in a remote situation is more common than in the immediate location of the disease. Probably a great majority of the cases of tri-facial neuralgia have their origin in the maxillary antrum and careful investi-



gation of this cavity might prevent the development of many cases of intractable tic-doloreux with the horrible suffering it entails. A purulent discharge from the nostril, or from an alveolar fistula, is usually present, though in the so-called "latent" cases it may be wanting. The secretion is usually very offensive and the odor is most perceptible to the patient himself, wherein it differs from the other fetid diseases of the nose. A peculiarly disagreeable taste is apt to be complained of. There is often a condition of more or less decided mental hebetude and constitutional symptoms due to pus absorption may be present in varying degree. Pus may be seen in the nostril, in the middle meatus, which quickly reappears when wiped off, especially if the head be lowered and turned from the affected side. Translumination of the antrum, particularly the subjective appreciation of light by the patient, is of negative value by excluding suppuration, except in the presence of cysts which transmit light more freely than normal tissues. On the other hand, opacity of the antrum is by no means conclusive evidence that an empyema exists. Irrigation through the ostium is convincing, if it can be accomplished, but any great degree of intranasal swelling makes it very difficult, or impossible. The injection of hydrogen peroxid will give the characteristic reaction if pus be present. Puncture of the antral wall in the inferior meatus, by means of a suitable trocar, affords a ready means of diagnosis. The same procedure at the gingivo-labial fold has been practiced, though it is a more difficult and painful method than the preceding and no more conclusive.

As we have said before, it is absolutely essential before deciding on any method of treatment to assure ourselves that the antrum is or is not the primary seat of the trouble. All the symptoms enumerated may be present as a result of disease of the other accessory sinuses, and when carious teeth are also present, it involves some rather nice points of discrimination to decide with exactitude where the original difficulty lies, and we and our patients may, under such circumstances, be very seriously disappointed at our lack of success in accomplishing a cure.

## Prognosis and Creatment.

The prognosis is usually favorable as to life. Antral suppurations may influence the general health unfavorably, and in some cases by direct extension to vulnerable parts may induce a fatal issue.

Usually some radical surgical operation is necessary to the cure of these conditions. The procedure devised by Sir Astley Cooper is the oldest method of treating antral abscesses and has been the one ordinarily practiced by dental surgeons; it consists of alveolar puncture and drainage. You are all familiar with the details of this operation. In suitable cases it is very satisfactory, but unfortunately we know of no way whereby we can possibly determine beforehand when it will



meet the surgical necessities of the given case. Under the conditions cited above, where the antrum has acted merely as a receptacle for the pus formed in an alveolar abscess, extraction of the offending tooth and drainage through an alveolar puncture with irrigations will uniformly accomplish a speedy cure. Where, however, the antrum is definitely and generally affected, the lining membrane is extensively diseased, new growths are present, or septa exist, where one part only of the cavity is drained, this operation is absolutely useless. We can assert that after a few weeks of treatment in this way, if the discharge persists we can be certain that it will never succeed, and that more thorough methods must be adopted. Even in suitable cases it will fail at times, and some of these failures are due to faults in the drainage tubes employed. They may be unsuitable in caliber or length. The tube should be of the greatest possible diameter and its length just sufficient to reach the floor of the antrum: if too long it will not empty the cavity, if too short granulations will form above it and prevent the fulfilment of its purpose.

The method which I employ and the one that seems to me based on the soundest principle is to make in the supra canine fossa an opening sufficiently large to directly inspect and explore with the finger the entire cavity of the antrum, breaking down all septa, thoroughly curetting the walls of the antrum and leaving a smooth, clean surface; then removing a liberal portion of the naso-antral wall in order to make practically one cavity of the antrum and the adjacent nostril. This opening is intended to be permanent and permits free inspection and the subsequent treatment which may be necessary. The buccal opening is closed either at once or after the first dressing and the treatment carried on entirely through the nostril. The relative cure is measured by the duration of the post-operative reaction and the positive cure is usually a matter of a few weeks. Even if we have mistaken a "pyosinus" for a true empyema, the patient's condition is better, for the antrum under such conditions is practically self-cleansing and can be emptied by blowing the nostril vigorously.

Almost an infinity of methods, differing in minor details, have been advocated, but they have seemed to me less generally useful than the method just described.

Thus I have casually indicated how closely allied are the work of the dentist and the rhinologist, how important a field you labor in, how far-reaching the possibilities of your—as yet young—art of orthodontia are. Withal, I ask you not to lose sight of the fact that without the help of the rhinologist your efforts will not be entirely successful, and that in the sequence of events as I have outlined them, his proper sphere of usefulness and action often precedes your own in point of time.



# Second District Dental Society of New York. October Meeting.

A regular meeting of the Second District Dental Society of the State of New York was held on Monday evening, October 12, 1908, at the Kings County Medical Library Building, No. 1313 Bedford Avenue, Brooklyn, N. Y.

The president, Dr. Hillyer, occupied the chair and called the meeting to order.

The secretary read the minutes of the last meeting which were approved.

In the absence of the vice-president the secretary then took the chair, while President Hillyer read his address, after which he resumed the chair.

Among the effects of the late Dr. Littig was a piece of ivory, and as I was looking at it and thinking what could be done with it, it seemed to me no better use could be made of it than to have a gavel made for this society. I therefore took great pleasure in having this gavel made and inscribed in memory of one, who, although not a member of this society, yet stood in such close connection with almost every member as to seem to be a member himself, and I present it on this occasion, trusting that at all times it may control the most peaceful of gatherings.

Dr. Ottolengui. With the memory of Dr. Littig fresh in our hearts I can not let this occasion go by without asking you all to realize that nothing but peace and harmony can reign so long as a piece of ivory which belonged to Dr.



Littig, made into a gavel, shall be the emblem of order of this society; and I ask you all to rise and thank Dr. Hillyer for his present. A rising vote was taken.

Dr. Friedrich Hecker, of Kansas City, Mo., then read a paper entitled, "The Bacterial Vaccines in the Treatment of Pyorrhea Alveolaris, or Suppurative Peridentitis."

### Discussion of Dr. Hecker's Paper.

Dr. Martin Dewey, Kansas City, Mo. Pyorrhea is primarily a disease of the peridental membrane, and it manifests itself by chronic inflammation; the teeth become exceedingly sore, and mastication is painful, followed by a flow of

pus. With that you have calcareous deposits. The calcareous deposits are a secondary consideration; they are not the primary cause of the condition. The primary cause must first be eliminated. The calcareous deposits are always a source of irritation, like a splinter in the flesh, in any other part of the body. Dr. Hecker said the reason for using a dull instrument is to avoid injuring the peridental membrane. You must keep the peridental membrane intact. If the tissues are sore, and the peridental membrane inflamed, you must work by feeling. The patient is restless, and the operator is at a disadvantage. If you can remove that calcareous deposit under those adverse conditions, how much easier could you do so under favorable conditions? That can be produced by the proper use of the bacterial vaccines. Those are facts as they exist. Do not lose sight of the value of the vaccine. If the vaccine produces what it does, you are dealing with something that is counteracting the cause of the disease. If you remove the calcareous deposits and everything is in its normal condition, a normal restoration will occur. If you can get the gum tissue against the root of your tooth, and keep infection out, you will have re-attachment and health. That is what actually takes place. Produce as little traumatism as possible and get rid of the inflammatory conditions first.

It sounds almost like a fairy tale to those who have seen bad cases of pyorrhea and calcareous deposits, that this can be accomplished before you touch the tooth, and thus you may get rid of the dread and fear which dentists have had of doing this.

When men like Dr. Root, who was simply forced into believing this, will make the statement which he has, it is because he has seen the results, and you will have to see the results to be convinced of the values of those bacterial vaccines.



Dr. Jas. C. Gallagher, M. D., Brooklyn. My work has not been so much with the teeth and the gums in pyorrhea, but along a different line. I am not unmindful of what the reader of the paper said—that he was tired—and I do not

wish to prolong the discussion; but I have had some few cases, and if it would be of interest, I would like to outline what I found and what I did. My first case was in my own family, with a condition of pyorrhea. I made a culture of the pus coming from the pockets, and found it was the staphylococcus aureus. I want to show you that it is not as difficult to do this work as it would seem from the paper. It is very interesting, and at all times you will be interested and amused at the very peculiar and funny things you will find about the teeth, or in any cavity that has pus in it.

I made my vaccine of the strength of 600 minims, or approximately that. I gave the injections about every sixth day. If the case was not doing well, I took the index and found out the reason, and whether the dose was too small or too large, and whether I was doing more good than harm. After the sixth treatment I could not obtain any more pus with which to make a culture. The gums were swollen, and the jaw very tender. After the second injection the pain disappeared, there was no more bleeding, and the teeth, according to the testimony of the patient, were tightening up. It is some seven months since I began that treatment. There is no longer any pus, and there is only one tooth that is in any way loose.

My second case was another member of my family, who had the same trouble, and I also discovered the staphylococcus aureus. I gave the same dose every five days. It practically had the same result. The only case I treated jointly with a dentist was the case of a lawyer sent to me in June. Perhaps I do not know the real picture of pyorrhea—perhaps I have not seen as bad cases as some; but I take it that this man had quite as much trouble as he wished. Eight or nine teeth were threatening to come out. With him, before taking a culture, I prepared his mouth with a germicide or mouth wash which we had demonstrated at the College of Physicians and Surgeons in New York. The wash the doctor speaks of I am not familiar with, but I have been using a wash which was recommended, and which is just as effective. It consists of alcohol 30 parts, glycerin 10 parts, and distilled water 60 parts. Used as a constant mouth wash that will kill pneumococci and almost all the virulent bacteria in a short period.

With this third patient I prepared him for twenty-four hours with that mouth wash, because it looked so very bad. I used pledgets of cotton and washed away most of the debris. I then gave him this mouth



wash and told him to use it constantly every hour for twenty-four hours. I made a culture and sent him to his dentist. cleaned the teeth, and then I made a culture. I obtained a very fast growing staphylococcus. I found also that he was suffering with rheumatism. I made the vaccine and gave him his injection, and then increased the dose; after the second injection the tenderness had disappeared, the bleeding had stopped, and he felt relieved. There was a dispute then as to who had relieved him, the dentist or I. The dentist assured him if I had anything of this kind I could make a million. I had not promised the patient anything, but I had him under treatment for the greater part of June and July, and he was getting the injection every fifth day. He now has absolutely no pus: I can not take a culture from him. I called him up and asked him how he was, when I was asked to discuss this paper, and he said he was perfectly cured of this trouble. suffering from infectious rheumatism, and we relieved not only his pyorrhea, but also his rheumatism.

I think Dr. Hecker has rendered our profession Dr. R. G. Futchinson. great service by his investigation and practical experiments in this line. To my mind the greatest value that attaches to what he has done is in the fact that he has proven to us that pyorrhea is due to a local infection resulting from a low resistance to an opsonic index, if I properly understood him.

As regards the profession, and even specialists in the treatment of pyorrhea, the adoption of this method seems almost impossible. I do not think it will become universal. We have not the time nor the apparatus to produce these opsonic indices, and I can not see why it is necessary. The same results which he obtains in a great majority of cases can be obtained in much less time by the removal of the deposits and toxic matter of every kind from the mouth. I must take exception to a statement he made in regard to the removal of deposits. He says it is quite a simple matter, and one not requiring a high grade of skill. I deny that most emphatically, and I am confident that many failures result from lack of skill, lack of familiarity with the work, and lack of care in the removal of all foreign matter that is present.

I think he is right in regard to dull instruments. Much irritation is often caused by sharp instruments, and the excessive denuding of the roots of the teeth, bringing about a hyper-sensitive condition. Rubber cups and discs can be used for polishing the teeth, but the main object must be the removal of everything irritating and toxic. I do not see why we should wait weeks and months before beginning our surgical interference. When we have a splinter in any of the tissues of the body we remove that foreign body promptly. My idea is to operate imme-



diately. I say immediately, but sometimes it is necessary by antiseptic washes to reduce the inflammation and irritation first; but the main thing is to remove all foreign material thoroughly without unnecessary destruction or laceration of the tissues.

I thank you one and all. Dr. Gallagher said in one of his cases there was a question as to whether the doctor or the dentist did the good. If he discovered the cause and gave the proper treatment, he is entitled to the credit for the cure, even though the dentist does not think so.

I did not come here to discuss methods of removing deposits from the teeth; I came to lay down no law. Each man has a right to his own opinion. If we all thought alike and all did alike; we would be an odd race. Fortunately God has created us all different. If any of you would like to come up to the platform and see the method of isolation I would be more than pleased to show it to you after adjournment.

Is there any restoration of tissue after your treatment where there has been a marked recession of the gum?

Dr. Fecker.

I do not think you will find where there is a destruction of tissue in any part of the body, where there has been necrotic tissue, that there is any restoration. That is contrary to all laws of physiology.

Dr. Hutchinson moved a hearty vote of thanks to the essayist and to Dr. Dewey. Motion carried.

Dr. Ottolengui moved a vote of thanks to Dr. Gallagher. Motion carried.

### november Meeting.

A regular meeting of the Second District Dental Society of the State of New York was held on Monday evening, November 9, 1908, at the Kings County Medical Library Building, No. 1313 Bedford Avenue, Brooklyn, N. Y.

The president, Dr. Hillyer, occupied the chair, and called the meeting to order.

The secretary read the minutes of the last meeting, which were approved.

Dr. Croscup announced with regret the death of Dr. Samuel Waite and Dr. D. A. Morton. The president appointed a committee consisting of Drs. Croscup, Creveling and Z. P. Fuller to prepare suitable resolutions in regard to the same, and present the same at the next meeting.

The paper of the evening was then read by Hubert Arrowsmith, M.D., entitled, "Points of Equal Importance to the Dentist and Rhinologist."



### Discussion of Paper by Dr. Arrowsmith.

In connection with this subject of the relation of **Dr. Arrowsmith.** the formation of the upper jaw and subsequent nasal obstruction, I want to refer to a paper by Dr. Mozier, of Boston, which will repay careful study. It was published in the May number of the *Laryngoscope* of this year, and I think all of you gentlemen would be interested in it.

I have a specimen which I think is unique. I have not been able to find anything exactly like it in the literature. The patient was referred to me by a dentist, with this history: She had been suffering for a year with intense pain about the upper jaw. The first molar had been extracted, and was carious to a certain extent. I saw her about two months after. There was no relief from pain, and there was a constant drip of pus from the alveolus. I opened in the usual way, when, to my astonishment, I found that the second molar had grown with its roots deeply embedded in the antrum. You can see where the mucous membrane covering the roots had joined the crown. After the first reaction was over I had Dr. Knapp extract it under gas, and he had as much trouble in getting it out of the antrum as I ever saw him have in removing a tooth from a normal socket. The crown of the tooth is carious, and this would undoubtedly explain the pain. The condition was absolutely unsuspected, and I do not see how anyone could have anticipated such a condition.

I do not like to open the discussion on this important paper, but I want to thank Dr. Arrowsmith Dr. Gough. for the benefit which I have derived. I had no idea that the members of the medical profession were so allied to the orthodontia side of it. The whole paper is most excellent, but I want to speak more particularly along the line of orthodontia which he touched upon. I think that the rhinologist seems to grasp the situation in regard to the intimate relation between orthodontia and rhinology—nose and throat troubles—much more quickly, and seems to appreciate the situation better perhaps than the average general practitioner of dentistry. I know that all the rhinologists I have talked with, with very little insight into orthodontia, have been prompt in this appreciation. It is a well-established fact now among orthodontists that Class II cases can not be successfully treated without the aid of the rhinologist, and one of the important branches that is taught in the Angle School of Orthodontia is the examination and recognition of nasal obstructions, and any abnormalities of the tonsilar region.

It was a pleasure to hear the essayist speak of Dr. Mozier's paper. On last Friday Dr. Mozier gave, before the American Society of Ortho-



dontists, in Washington, a paper which was one of the most scientific I have ever heard. While he quoted somewhat from his former paper of two years ago, he has made investigations which were really very much in advance of what he had reported at that time.

Then I wanted to speak in regard to the narrowing or the underdevelopment of the upper arch in those Class II cases. It is very evident that the removal of adenoids after they have done their damage is not very beneficial.

The essayist spoke of the difficulty of getting the mothers to consent to have them removed at the right time. It is strange that so many of the medical profession will go on advising patients to postpone, saying the child will outgrow it. They do not seem to realize that it is during the time that the teeth are being formed and the germs are developing that all the harm is done.

When the essayist closes the discussion, will he **President Fillyer.** kindly state the periods at which these operations should be performed? He said the earliest period at which he had operated was two months, and Dr. Gough has indicated the period at which he considers it is no longer of much advantage. Will the essayist kindly enlarge upon that point?

Dr. Cutz. I agree with what Dr. Gough said. I am glad to know the dentists are alive to the necessity for the early removal of adenoids. This paper of Dr. Mozier

that was spoken of is well worthy of perusal by any man who does our work, or the rhinologist's work. The fact that adenoids do cause so much trouble, and that the mischief begins so early, is the thing that is overlooked. I think, by many parents and many dentists when they begin to regulate the teeth. I find children ten or twelve years old with a very narrow, V-shaped upper jaw. The adenoids are large and have been there for a long time, and they have been having their teeth regulated for quite a time. I do not believe it is always possible to pull back enough teeth or widen out an arch at that age to compensate for the immense amount of distortion that has taken place by the presence of adenoids, or a crooked septum, or some other interference with the natural nasal breathing. It would be of much value to all dentists if you would make that very plain in your early instruction. What the essayist said a few minutes ago about the general practitioner, is largely true about the older men, but the younger men who have had the presence of adenoids hammered into them in their training at school in the last ten or twelve years. are more alive to the fact than the older men. So much was not known in the earlier days about adenoids, and they did not seem to realize the



connection between the distortion in the teeth and the obstruction in the breathing.

As far as the antrum question is concerned, I believe thoroughly with Dr. Arrowsmith. I think very few cases are due to dental causes, and I think very few cases can be treated through the alveolar opening, because you will be surprised to see how many skulls show one or two septa in the antrum. An opening made into one would only drain that one, and not help the others. The only satisfactory way to open the antrum is through the anterior wall. The antrum that is serving as a reservoir for some of the other sinuses can very easily be treated by puncture through the nasoantral wall at the floor of the nose, or through the alveolar process; but there is not always a tooth available for extraction. Many people do not like to have a good tooth drilled to put a tube through. By puncturing through the nose a fair sized opening can be obtained, and it can be kept clean.

The fact that accessory sinus disease often exists in so many other sinuses, and that the antrum is only the reservoir from the frontal or the ethmoid on that side, goes to show that the dental cause for antral trouble is not so common as we were formely led to believe.

About four years ago I removed a tooth, evidently a supernumerary tooth, because the man had a full set of teeth. The tooth was almost entirely eroded, and was lying loose in the antrum. It had been at some time a pretty fair canine tooth. The man did not know he had the extra tooth, and I got it out of the antrum through the nasal opening, through the opening of the floor of the nose, making a fairly large opening through the naso-antral wall. I felt something rough, and hooked it out with a curette. That man had been treated for a number of years for consumption, because he continually coughed up large masses of pus, but a few weeks after that he stopped coughing up pus. He had really suffered a great deal, had lost much flesh, and that suppuration had certainly poisoned him to a great extent. He was in a profound state of toxemia.

Another point is the presence of adenoids, which ought to be removed whenever they are found. My own little girl had just passed her third birthday when she had hers removed. She showed no evidence of it before, until she complained of earache. Many children complain of earache, who suffer from adenoids, with those high, narrow arches, and yet there are not many dentists who advise the removal of adenoids. As soon as the child opens its mouth there is the first indication. All rhinologists put their finger on that at once as an indication of the fact that there is post-nasal obstruction. The presence of adenoids makes a great deal of deformity in the upper jaw. The distorted septum that Dr. Gough spoke of we formerly thought was a cause, but we realize now that it is



an effect of the trouble. Ninety-five per cent. of all people have distortion of the septum—perhaps even more than that. I hardly ever see a straight one. You find in many cases one side of the floor of the nose higher than the other, and I have made it a point to ask about the eruption of the second teeth; and in most cases where they have had no injury to the nose the eruption of the second teeth was uneven, one side coming down much sooner than the other.

Dr. Gough. say that it is needless to operate after the teeth have erupted. I did not mean that. What I intended to say was that in the formation of the arches the damage is done at an early age; nevertheless, later on, if the case is treated and corrected, it is always necessary to remove the adenoids in order to be sure that the correct occlusion may be maintained.

Just a word in regard to what Dr. Lutz said in relation to the medical profession. Perhaps I have been unfortunate in my experience in that respect, but the large majority of cases that come to me need to be sent to the rhinologist first. I referred them back to the family physician for him to send them to some rhinologist, as I thought that was the ethical course to pursue. I am beginning to think I have made a mistake, because in most of those cases they go to the physician and he says, "Oh, that is all right; that will pass away; you need not bother." Or perhaps the physician says, "I will do it myself; you do not need to go to a specialist." And he does it in a slipshod way, and the trouble recurs.

I have had unfortunate experiences with recurrences. One case I sent to a rhinologist direct; it was a very decided Class II case, with three-quarters of an inch between the incisal edge of the lower incisors and the incisal edge of the upper incisors—a very decided protrusion of the upper teeth. The rhinologist operated, and then assured the patient that the teeth would correct themselves.

Dr. Arrowsmith. Confront every advance in any department of medicine. Years after the conditions which obtain from suppurative appendicitis were recognized, people kept on dying because it was considered only a fad. There is such a thing as being conservative, but there is also such a thing as being criminally conservative, and I think that phase obtains often. If the family physician approves of anything, that is enough for the family; they do whatever he says. It certainly requires education of the laity to get them to accept these recommendations which we make.

It does not take so very long for these things to be appreciated, if there is any truth in what we are doing; but in many cases they will

3°3 April



not see the orthodontists, or the rhinologists, until the harm has been done. Many of them go to Christian Scientists, or osteopaths-the osteopaths may help them—sometimes. (Laughter.)

I understood Dr. Gough to say that the efforts of the orthodontists are not so successful as if the children were taken in time. Both he and I should get hold of these cases before the second dentition commences, because at the time when all the symptoms are most marked, secondary dentition is well under way. We see most of these cases between six and nine or ten years of age. The removal of adenoids after that period probably does not have much effect on the development of the jaw. It goes on in its vicious way as it started. From the orthodontic view of the case, the harm to that tissue is done. I have performed the operation at two months, and at sixty-five years.

Dr. Gough also spoke of recurrence after slipshod operations. Recurrences do obtain after the most careful operations in probably two per cent. of the cases, even when done with the utmost care. That is usually due to the youth of the child. The older the child the less likely a recurrence.

Dr. Cough.

If nasal breathing is established after the operation is thoroughly performed, are the adenoids as likely to recur?

Dr. Arrowsmith.

No, Doctor; but I am going to operate on a case next week that I have operated on three times before. Nasal breathing has been established from time to time. There is a case where you could have come to my rescue.

Dr. Cough.

If the patient can not close the lips over the teeth, the child can not have nasal breathing, bebecause the mouth, of course, is open.

Dr. Arrowsmith.

Many of those children who have pretty well formed jaws, and whose pharynx may be cleaned out absolutely, will as a matter of habit continue to

breathe through the mouth. Those cases we can usually treat by putting on a muzzle of some sort—tying up the jaw. I have been rather disappointed that nobody has given any history parallel to that of the tooth I showed. If any gentleman has had an experience of that kind, I should be glad to hear of it.

A hearty vote of thanks was tendered to the essayist for his able paper, and to Dr. Lutz, who took part in the discussion.



Toothache is the layman's term for any pain originating in or about the teeth, the most severe being pulpitis and acute alveolar abscess. The improper or unskilled treatment of either will leave a tooth in a condition from which it is chronically troublesome, periodically "sore"; this may be designated a "lame tooth." A correspondent asks three questions in this connection. His first inquiry reads as follows:

"What process of treatment will avoid soreness and tenderness of teeth used as piers in bridgework, after the bridge has been set?"

Creatment of Ceeth Used as Bridge Piers. It will scarcely be the answer expected, to say that roots used as bridge piers should never be sore nor tender after the bridge is set; yet this is true, because no bridge should be permanently attached to roots until the operator is reasonably certain that no

soreness or tenderness exists, or will ensue.

Such piers reach the dentist in one of two conditions: either (a) the pulp is alive; or else (b) the pulp has previously died. In the latter case infection may or may not have resulted.

Where the pulp is alive, and presumably healthy, and the dentist



intentionally devitalizes it in order to make proper use of the root as a bridge pier, he must under no conditions use arsenic, as this medicament in the past has been responsible for thousands of "lame" teeth. The pulp, therefore, should be removed under pressure anesthesia with cocaine. If this should fail it would be preferable to use nitrous oxid gas, or even ether, chloroform or sonnoforme, rather than resort to arsenic. Indeed it is scarcely too much to say that arsenic no longer has a place in dental practice. In connection with cocaine anesthesia and the subsequent removal of the pulp, the strictest asepsis should be maintained. Upon removal of the pulp there is often a hemorrhage and this may occasionally be profuse. It should not be staunched, either by plugging with cotton, or by using adrenalin or other styptics. Any such procedure but invites the formation of a blood clot beyond the apex, and this will account for the tenderness so often reported after the operation of removing living pulps. This blood clot must be absorbed before the tooth can be accounted safe for either filling or bridge, and, of course, during its presence there is danger of infection as such a clot affords fine pabulum for a germ culture.

In the presence of hemorrhage through a tooth root, it is important, therefore, to exhibit patience and even invite bleeding with warm douches and dry cotton tampons, rather than to attempt to dam it back. A root handled in this manner, with perfect asepsis, and provided that all the pulp is removed, will never become sore nor tender.

If the pulp has died prior to the attempt to utilize the root as a bridge pier, of course it becomes essential to thoroughly cleanse and sterilize the canals, and if an abscess be present, to cure that before attempting to set a bridge. This is not taking into account the splinting of teeth affected by pyorrhea, such procedure being quite the opposite of what is here discussed. In such cases the bridging is done to support the affected roots and the roots are not being used to uphold a bridge.

The second question was: "What is the treatment when there is tenderness after setting a bridge?" The writer was alluding to roots from which living pulps have been intentionally removed. It has been explained above that such roots, properly treated prior to the bridging, will not become tender afterward. Where tenderness does ensue, therefore, the fault is either in the treatment of the root, or else in the bridge



itself. Sometimes in assembling, if proper precautions be not taken, the bridge will be shortened by the contracting solder. This makes the bridge bind when setting it, and some operators force it on rather than remedy the defect. The best course is to cut the bridge in half, and resolder, taking precautions against shrinkage. But if the bridge is forced to place, it is evident that the undue stress upon the piers may cause one or both to become tender. But this is the same sort of tenderness which results from wedging for approximal fillings, and if the stress be not too severe the tenderness will pass away, the roots adjusting themselves to the new condition. It is essential, however, to be sure that the occlusion does not contribute to the irritation.

When the tenderness is not traceable to the binding of the bridge, nor to faulty occlusion, and it is known to be due to the pulp removal, the presence of a blood clot at the apex may be suspected. This may sometimes be alleviated by counter irritation, such as an application of capsicum, or of strong iodin (Churchill's). Iodin applied cataphoretically would be even better. Such treatment, however, to be of advantage must be severe enough to produce a blister, and this may cause considerable pain. For this morphine may be exhibited with advantage. But even this may fail, and infection may follow, in which event excision of the end of the root and repeated surgical dressing during healing is the only recourse, always supposing that the bridge can not be removed. The remedies for tenderness after setting a bridge only accentuate the necessity of having the piers absolutely safe before attaching the bridge.

The third question asked was: "What do you do with roots where canals are difficult or impossible of access?"

One of the greatest blunders prevalent among dentists is the attempt to treat multirooted teeth through small openings. Cavities should be so freely cut that ready and direct access may be obtained to all roots needing treatment. After this, even very attenuated canals may be thoroughly explored with patience, an assortment of reliable and very fine broaches, and that most valuable remedy, first suggested by Dr. Emille Schrier, Kalium-natrium (sodium and potassium). The technique of using this preparation has been described many times, and its efficacy is so great that it is extraordinary that it is not more commonly utilized.



### Dr. Allison W. Harlan.

Dr. A. W. Harlan, one of the most widely known men in our profession, departed this life on March 6, 1909. Dr. Harlan had been on a visit to Boston, and while at a hotel in that city slipped and fell while taking a bath. He suffered a painful injury which was not correctly diagnosed at first. The accident occurred on February 20, and he was brought immediately to New York where temporary quarters at the Holland House were secured. After suffering for some days without relief he decided that it would be best to go to a hospital, and his friend, Dr. Dawbarn, was called in consultation. Dr. Dawbarn pronounced it a ventral hernia and recommended immediate operation. This advice was accepted and for over an hour he endured the operation under cocaine. When it was seen, however, that the operation would necessarily be prolonged, ether was administered. Altogether Dr. Harlan was on the table nearly four hours, he rallied after what was considered a very successful surgical operation, but owing to the condition of his kidneys, died suddenly on the following day.

Dr. Harlan was born in Indianapolis, Ind., November 15, 1851. His parents were Austin B. and Elizabeth L. Harlan, old residents of that city. He was educated in the public schools, and entered the dental offices of Drs. Kilgore and Helms, the leading dentists at that time in Indianapolis, and with them he studied for more than two years. At the age of eighteen he located in the city of Chicago, opening an office for himself, and rapidly built up a remunerative practice. In 1874 he matriculated in the Ohio Dental College and was graduated from that institution during the following year.

He was married on January 4, 1871, at Rock Island, Ill. He reared a family of nine children, all of whom survive him. Dr. Harlan's second wife was Miss Mary E. Gallup, of Boston, who was at his bedside when he died. This second marriage took place in 1902.

Dr. Harlan had occupied a prominent place in American dentistry for a great many years. He founded the *Dental Review*, and for fifteen years was one of its owners, and editor in chief. He was a constant



contributor to our periodical literature, having published many important papers. At the time of his death he was preparing a paper to be read at the coming meeting of the National Dental Association, and was also engaged upon the manuscript of a work on Dental Materia Medica and Therapeutics.

He was always interested in dental society work, and served as president of the Chicago Dental Society, of The Mississippi Valley Dental Association, and of the American Dental Association. He was one of the founders of the Odontological Society of Chicago, and at the time of his death was a member of the American Medical Association, the National Dental Association, and the Federation Dentaire Internationale. He was likewise connected with several local societies, and was an honorary member in important dental societies both at home and abroad.

He was a member of the first Board of Dental Examiners in the State of Illinois, and had filled various chairs in the Chicago Dental College from the time of its establishment until he left Chicago and removed to New York. He was a graduate of Rush Medical College, and held the degree of Master of Arts, conferred upon him by Dartmouth College.

He was an extensive traveler in the United States and had likewise made twenty visits to Europe. He attended all the International Dental Congresses that have been held, and nearly all the International Medical Congresses.

In 1904 he moved from Chicago and opened an office in New York City, and within a year had attracted an important and wealthy clientele. He made his home in Mount Vernon, where he had but recently purchased a residence. He was a member of the Manhattan and the New York Athletic Clubs and of the Indiana Society and the Illinois Society, all of New York City.

Dr. Harlan was a man of most studious habits and an indefatigable worker. He was an enthusiast in his profession, and nature had singularly and felicitously adapted him to the exceptional and advanced requirements of his profession. His ideals were high and his courage and purposes were fitly exemplified in his achievements. He wielded a commanding influence among his professional brethren, and his amiability, coupled with his mastery of every subject coming within the sphere of his work, brought him the respect, esteem and friendship of those who had the good fortune of his acquaintance.

Dr. Harlan's eldest daughter married Mr. Robert Shaw, of Chicago, and lives in that city; another daughter married Major Baxter, of Albany, N. Y., who makes her home part of the time in Chicago; another daughter married Robert Harper, of Detroit, Mich. He has two sons



married, one practicing dentistry and the other engaged in business, both residents of Chicago. The other children are unmarried, but full grown and engaged in business in Chicago, except the youngest daughter who is now traveling with her sister abroad. He leaves, in addition to his widow and children, his father, now 82 years of age, and one brother, a lawyer in Indianapolis, and at present a member of the State Senate of that State.

Dr. Harlan comes from a family distinguished in many lines of endeavor, Iowa furnishing a United States Senator and member of Lincoln's Cabinet; Kentucky, Justice of the Supreme Court; and other States Congressmen and men of prominence and influence in their respective localities in politics, medicine, law and statesmanship.

### Dr. Frederick William Schloendorn.

Dr. Frederick William Schloendorn, a leading dentist of Baltimore City, died of Bright's disease on March 5, 1909. He died at the prime of life, devoted to his profession and beloved by his colleagues, his family and his numerous friends. Dr. Schloendorn was born at Bad Rehburg, in Hanover, Germany, on January 22, 1860. The inspiration for his lifework he received from his father, a family physician of the old type, who amid an agricultural and farming population spent a life of selfsacrifice for the sick and the poor. The financial returns were by no means commensurate with the size and responsibilities of his practice, and he accepted part payment in the coin of love and gratitude. Any farmer miles away would hitch up his team at midnight to drive you to Bad Rehburg free of charge, if you introduced yourself as Dr. Schloendorn's friend. The second son, Frederick William, born with a wonderfully deft hand, who in his father's abscence had frequently bandaged a wound or set a broken limb (the mother's table linen was not considered too precious in emergencies), dreamed of becoming a surgeon, but circumstances favored a different channel for his activity. opportunity was offered in the field of dentistry, and he became the assistant of Dr. Florcke in the city of Bremen, who had an enormous practice in town and country. Florcke's magnetic personality impressed the young man, who quickly acquired his master's mechanical skill and remembered also his ways of dealing pleasantly with many varieties of the human kind. During those years Frederick William Schloendorn also completed his term of military service, which he enjoyed from beginning to end. He was physically one of the strongest men in his company, an athlete and a fine swimmer, and while on the march during



maneuvers, delighted his companions with his cornet, or an ocarina, or any other music-making instrument he could press into the service. Wishing to learn the methods of American dentistry, Frederick W. Schloendorn came to the United States in 1888, and entered the dental college of the University of Pennsylvania. In the following year he changed to the University of Maryland, and graduated there with the Class of 1889. A number of beautiful specimens of his work were presented to the museum of that institution.

Dr. Schloendorn meant to remain in Baltimore only a short time before returning to Bremen, but his immediate professional success, the advice of friends and finally his marriage induced him to locate permanently in Baltimore. A number of very difficult operations in surgical dentistry quickly gained for him the esteem of the physicians of the Johns Hopkins Hospital and University. In the treatment of teeth, as for instance in the filling of root canals, he showed originality and proved the courage of his convictions. His particular specialty was crown and bridge work, and in this department he may be regarded as the pioneer in Baltimore, who in the face of opposition and doubts, more than any other man proved the permanent value of this forward step in modern dentistry. In his earlier years he executed every mechanical detail with his own hand, and later, when his practice grew so that he was compelled to work with two assistants, he still studied and watched every detail. Every piece of bridge work that left his office was a masterpiece, and it combined with expert mechanical skill the touch of the surgeon and the finish of the artist. Dr. Schloendorn loved his work, he breathed his soul into it, he inspired those about him. In appearance he was a man of fine physique, of impressive personality, and his friends will long remember his good fellowship, his buoyancy and his fairness toward the attainments of others. The gods loved him well and he died young.





# SOCIETY ANNOUNCEMENTS

### national Society Meetings.

National Dental Association, Birmingham, Ala., March 30, 31, April 2, 1909.

American Dental Society of Europe, Wiesbaden, Germany, April 9, 10, 12, 1909.

### State Society Meetings.

Alabama Dental Association, Anniston, Ala., May 11, 1909. Arkansas State Dental Association, Hot Springs, Ark., May 26, 27, 28, 1909.

Colorado State Dental Association, Colorado Springs, Col., July 12, 13, 14, 1909.

Connecticut State Dental Society, Waterbury, Conn., April 20, 21, 1909.

Florida State Dental Society, Ocala, Fla., June 17, 18, 19, 1909. Iowa State Dental Society, Des Moines, Ia., May 4, 5, 6, 1909.

Indiana State Dental Association, Indianapolis, Ind., June 29, 30, July 1, 1909.

Louisiana State Dental Society, New Orleans, La., April, 1909. Maine Dental Society, Portland, Me., June 24, 25, 26, 1909.

Massachusetts Dental Society, Boston, Mass., June 9, 10, 11, 1909.

Michigan State Dental Society, Kalamazoo, Mich., June 29, 30, July 1, 1909.

Minnesota State Dental Association, Lake Minnetonka, Minneapolis, Minn., June 22, 23, 24, 1909.

Mississippi State Dental Association, Natchez, Miss., May 11, 12, 13, 1909.



Missouri State Dental Association, Kansas City, Mo., May 26, 27, 28, 1909.

Nebraska State Dental Society, Lincoln, Neb., May 18, 19, 20, 1909. New Hampshire and Vermont Dental Societies, Weirs, N. H., May 18, 19, 20, 21, 1909.

New Jersey State Dental Society, Asbury Park, July 22, 23, 24, 1909. New Mexico Dental Society, Albuquerque, N. M., June 17, 18, 1909. New York State Dental Society, Albany, N. Y., May 6, 7, 8, 1909.

North Carolina State Dental Society, Asheville, N. C., June 23 to 26, 1909.

Ohio State Dental Society, Columbus, O., December 7, 8, 9, 1909. Oklahoma State Dental Society, Oklahoma City, Okla., June 3, 4, 5, 1909.

Oregon State Dental Association, Portland, Ore., July 12, 13, 14, 1909.

Tennessee State Dental Association, Memphis, Tenn., May 25, 26, 27, 1909.

Texas State Dental Association, Waco, Texas, June 10, 11, 12, 1909. Utah State Dental Society, Logan, Utah, latter part of June or first part of July.

Virginia State Dental Association, Chase City, Va., June 21, 22 23, 1909.

Washington State Dental Society, Seattle, Wash., July 15, 16, 17, 1909.

West Virginia State Dental Society, Wheeling, W. Va., October 13, 14, 15, 1909.

Wisconsin State Dental Society, Milwaukee, Wis., July 13, 14, 15, 1909.

# Fifth International Dental Congress. Berlin, Germany, August 23-28, 1909.

The Fifth International Dental Congress will be held in the Reichstagsgebaude (Houses of Parliament). The Hon. President of the congress is Geheimrat Prof. Dr. Waldeyer, director of the First Anatomical institute. Honorary members—Dr. Naumann, chief of the Medical Department of the Kultusministerium; Geheimrat Prof. Dr. Kirchner.

The business of the congress is conducted by the following committees: I. Committee on Organization. 2. Berlin Local Committee. 3. Chairmen of the different sections.

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- (1) Committee on Organization.—The Committee on Organization consists of fifteen members. President—Privy Councillor Prof. Dr. Walkhoff, Munchen, Briennerstr. 47. Vice-presidents—Prof. Dieck, M.D., Berlin, Potsdamerstr. 113; Prof. Hahl, Berlin, Lutzowstr. 53; Hielscher, Coln o. Rh., Hohenzollernring 30. Secretary-general—Schaeffer-Stuckert, D.D.S., Frankfort a. M., Kettenhofweg 29. Secretary—Konrad Cohn, M.D., Berlin, Potsdamerstr. 46. Treasurer—Blume, Berlin W., Unter den Linden 41.
- (2) Berlin Local Committee.—The Berlin Local Committee is composed of thirty-eight members. Presidents—Professor Guttmann, court dentist, Potsdam; Robert Richter, D.D.S., Berlin, Victoriastr. 23; Dr. P. Ritter, Berlin, Koniggratzerstr. 94. Secretaries—Weidmann, Berlin, Bulowstr. 1; Gutmann, Berlin, Alexanderstr. 71; Pursche, Berlin, Rankestr. 30. Treasurer—Helm, Charlottenburg, Berlinerstr. 169a.
- (3) Chairmen of the Sections.—The following twelve sections have been formed, all of which can hold sessions in the Reichstag Building simultaneously: Section I—Anatomy, physiology, histology; chairman, Dr. Adloff in Konigsberg i. Pr., Weissgerberstr. 6-7. Section II-Pathology and bacteriology; chairman, Prof. Dr. Romer, Strassburg i, E. Section III.—Chemistry, physics and metallurgy; chairman, C. Birgfeld, Hamburg, Alsterdamm I. Section IV—Diagnosis and special therapeutics, materia medica; chairman, Prof. Dr. Michel, Wurzburg. Section V—Oral surgery and surgical prosthesis; chairman, Geheimrat Prof. Dr. Partsch, Breslau; Prof. Dr. Schroder, Berlin. Section VI-General and local anesthesia; chairman, University Lecturer Dr. Fischer, Greifswald. Section VII—Operative dentistry; chairman, Prof. Dr. Sachs, Berlin, Kurfurstendamm 247. Section VIII—Prosthetic dentistry, including crown and bridge work; ceramics; chairman, Prof. Dr. Riegner, Breslau. Section IX—Orthodontia; chairman, Heydenhauss, M.D., Berlin, Potsdamerstr. 121. Section X—Hygiene of the mouth and teeth; chairman, Dr. C. Rose, Dresden, Section XI—Education and legislation; chairman, Dr. Ritter, Berlin, Koniggratzerstr. 94. Section XII—History and literature; chairman, Hoffendahl, Berlin, Schoneberger Ufer 20.

During the week of the congress an official daily journal will be published in three languages (German, English, French). Editor, Konrad Cohn, M.D., Berlin, Potsdamerstr. 46.

An international scientific and industrial exhibition will be combined with the congress. Prof. Dr. Dieck, Berlin, Potsdamerstr. 113, Villa 3, has taken charge of the management of this exhibition, which is to be conducted on a large scale, and he will furnish further information regarding the same.



At the last meeting of the Committee on Organization it was decided that the fee for membership be fixed at 25 marks (\$6.00), which sum will also entitle the holders of membership cards to a copy of the Transactions when published. For participation in the social functions additional cards will be issued by the Berlin Local Committee at a very low price. A guarantee fund of 20,600 marks has already been subscribed, and it has been decided not to call upon foreign visitors for financial or administrative support.

A hearty invitation is extended to all foreign confreres.

### Programme,

The following provisional programme has been arranged:

Sunday, August 22—Meeting of the Federation Dentaire Internationale. Evening: Reception of the guests at the Reichstagsgebaude.

Monday, August 23—Morning: Opening session. After the official addresses of welcome, four orators (German, English, French and American) will speak on subjects chosen by themselves and important for the entire profession. The National Committees of the respective countries have each been requested to nominate their orator. Evening: Reception given by the City of Berlin at City Hall.

Tuesday, August 24—9 a. m.-2 p. m.: Sessions of the sections. Evening: Banquet in the halls of the Zoological Gardens.

Wednesday, August 25—9 a. m.-2 p. m.—Sessions of the Sections. Evening: Fiftieth anniversary of the Central Verein Deutscher Zahnarzte (Central Association of German Dentists) in the halls of the Rheingold.

Thursday, August 26—Second general session in the great hall of the Reichstagsgebaude. Subjects and questions will be discussed by speakers appointed by the different countries. Evening—at the disposal of the congressists.

Friday, August 27—9 a. m.-2 p. m.: Sessions of the sections. Evening: Reception in honor of the congressists given by the confreres of Berlin and of the province of Brandenburg. Special train to Wannsee.

Saturday, August 28—9 a. m.-12 m.: Sessions of the Sections (passing of resolutions) and meeting of the Federation Dentaire Internationale. 3 p. m.: Closing session. Acceptance of the resolutions of the Congress. Evening: Farewell banquet at the Halensee Terraces.

On Sunday and after, groups of the congressists will visit German cities and universities.

The Bureau of the Congress will be opened four weeks before the opening of the congress. A postal, telegraph and telephone office will be established, also refreshment rooms.



The size of the Reichstaggebaude will render it possible for the different sections to meet simultaneously, so that the participants may hear lectures in different sections on one day.

In order to facilitate conversation between men of different nationalities, those confreres who speak English will wear a blue badge, those who speak French a red badge.

The Hamburg-American Packet Co. allows to members of the congress a reduction of 25 per cent. except during the height of the season.

The Berlin Local Committee will be pleased to procure lodgings for foreign colleagues and supply them with all information concerning their journey, their sojourn in Berlin, etc.

The prices of rooms in hotels vary from 2.50 to 30 marks per day (\$0.60 to \$7.00). All questions regarding this subject should be addressed to the president of the Local Committee, Professor Guttmann, Potsdam.

In order to make the visitors acquainted with the sights of Berlin and its environs, ably conducted excursions have been arranged for. The scientific institutions of importance will also be open to visitors.

### New York State Dental Association.

The forty-first annual meeting of the Dental Society of the State of New York will be held in Albany, Thursday, Friday and Saturday, May 6, 7 and 8, 1909. Sessions will be held in Odd Fellows Hall, and will convene promptly at 7.30 p. m. on the evening of Thursday, May 6.

Special attention is called to the fact of the first session occurring at this hour on Thursday, at which time much of importance will occur.

All day Saturday will be devoted to clinics, when all that is latest and best will be shown. A large exhibit also is assured.

Special rates have been secured at the various hotels. These rates will be quoted in the programme when issued.

Special railroad rate of one and three-fifths fare has been arranged with the Trunk Line Association. Ask for a certificate, not a receipt, when you purchase your ticket. Without it you can not have the benefit of the reduced rate on the return trip.

Reports of all officers and committees must be in the hands of the Executive Council by 12 o'clock Friday, May 8, in order to receive consideration.

Exhibitors desiring space will please apply to Dr. O. J. Gross, Schenectady, N. Y.

L. Meisburger, President.

Ellison Hillyer, Secretary. Brooklyn, March 25, 1909.



### Programme of American Medical Association, Section on Stomatology.

### Meeting at Atlantic City, June 8-11, 1909.

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I.	Chairman's AddressEdward C. Briggs, Boston, Mass.
2.	Enamel and Its VitalityR. R. Andrews, Cambridge, Mass.
	A Study of Malnutrition in the School Child.
	E. Mather Sill, New York City.
4.	Suppression of the People's DiseaseS. B. Luckie, Chester, Pa.
5.	The Role of the Teeth in Respiration. F. L. Stanton, New York City.
6.	Oral ProphylaxisAlphonse Irwin, Camden, N. J.
	The Tonsils and the TeethG. Hudson-Makuen, Philadelphia, Pa.
8.	Mouth Conditions in Their Relation to Systemic Infection.
	Frederick K. Moorehead, Chicago.
9.	The Surgery of Cleft PalateGeorge V. I. Brown, Milwaukee, Wis.
IO.	General Therapeutics and Surgery in Dentistry.
	Arthur R. Dray, Philadelphia, Pa.
II.	Conservative Surgery for Treatment of Tumors of the Mandible.  Thomas L. Gilmer, Chicago.
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12.	A Method of Treating Mandibular Fractures.  Robert T. Oliver, West Point, N. Y.
1.2	The Treatment of Extreme Degrees of Malocclusion of the Teeth
13.	by Operations upon the Ramus of the Inferior Maxillary Bone.
	Wayne B. Babcock, Philadelphia, Pa.
14.	Osteomyelitis of the Jaw
	Report of Two Record Tertiary Cases.
	G. Lenox Curtis, New York City.
16.	Tri-Facial NeuralgiaFred Hussey, Providence, R. I.
17.	AnesthesiaL. G. Noel, Nashville, Tenn.
18.	A Summary of Thirteen Thousand Nitrous Oxid and Oxygen
	Anesthetics
19.	Pseudo-pulpitis due to Rheumatoid Arthritis.
	William Mills, Baltimore, Md.
20.	Dental RoentgenologyG. E. Pfahler, Philadelphia, Pa.
21.	Report of the Committee of Revision of Pharmacopeia.  Herman Prinz, Chairman, St. Louis, Mo.
	G. B. Squires, Somerville, Mass.
	Report of the Committee on Vital Statistics.
22.	George V. I. Brown, Chairman, Milwaukee.
	Vida A. Latham, Chicago.
	Frederick K. Moorehead, Chicago.
	Edw.ard C. Briggs, Chairman.
	EUGENE S. TALBOT, Secretary.
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### Chird District Dental Society of New York.

The annual meeting of the Third District Dental Society of New York will occur on Tuesday, April 20, 1909, at the Y. M. C. A. Building, Albany, N. Y. The meeting will be convened at 10 a. m.

Morton Van Loon, Editor.

### Fiftha District Dental Society of New York.

The forty-first annual meeting of the Fifth District Dental Society of New York will be held in Syracuse on the 9th and 10th of April, 1909.

R. W. Barry, Secretary.

### Seventh District Dental Society of the State of New York.

The Seventh District Dental Society of the State of New York will hold its annual meeting in Rochester, N. Y., on the 16th and 17th of April, at the Seneca Hotel.

Plans are under way to make this the largest and most attractive meeting, in various points of interest, which has ever been held in the State of New York, and all the dentists within a radius of three hundred miles will be greatly benefited by coming.

There will be a large number of clinics at the chair and also table clinics, and several interesting papers will be read.

The manufacturers of dental instruments and supplies will also aid in making this a large meeting, and a most cordial invitation is extended to all who will come.

Business Committee,

LEWIS S. GOBLE,

E. L. SCHLOTTMAN.

C. A. THORNE.

C. W. LaSalle, Secretary,

Rochester, N. Y.

### Southern Minnesota Dental Society.

The twenty-fourth annual meeting of the Southern Minnesota Dental Society will take place April 12, 13 and 14, 1909, at the Saulpaugh, Mankato, Minn.

C. A. Hintz, Secretary.



### New Jersey State Dental Society.

The New Jersey State Dental Society will hold their annual meeting in the "Casino" situated on the beach front at Asbury Park, N. J., beginning Wednesday, July 22, and continue through the 23d and 24th, 1909.

The clinics and exhibits are so large and varied that it has been necessary to secure a large building to accommodate them and the many visitors to the meetings.

The location of the "Casino" is ideally situated, large and cool and well adapted for dental meetings.

The Hotel Columbia has been selected as headquarters for the society, and it offers superior accommodations and low rates for those desiring to attend the meeting.

All the principal railroads lead to Asbury Park, with many trains daily; also boat connections to New York for those desiring to travel by water

All the dental profession should mark off the above dates and spend a delightful three days' vacation attending our meeting.

CHARLES A. MEEKER, D.D.S.

29 Fulton Street, Newark, N. J.

### Eastern Indiana Dental Association.

The 1909 meeting of the Eastern Indiana Dental Association will be held at Marion, Ind., May 5 and 6.

The 1908 meeting was postponed that the members might join in the big Jubilee Meeting of the State Society, and the meeting this year is expected to be a record breaker.

Clinics are to be the big feature.

LEONARD STRANGE, President.

### Hlabama Dental Association.

The fortieth annual meeting of the Alabama Dental Association will be held in Anniston, Ala., May 11-13, 1909.

The programme will be an exposition of present day methods of practice. Make your arrangements now to attend.

E. W. PATTON, Secretary.

10101/2 Broad Street, Selma, Ala.



### Maryland Board of Dental Examiners.

The Maryland Board of Dental Examiners will meet for examination of candidates for certificates May 27 and 28, 1909, at the Dental Department of the University of Maryland, Baltimore, at 9 a. m.

Applicants must pass a written examination in anatomy and physiology, chemistry and bacteriology, oral surgery, operative and prosthetic dentistry and pathology, therapeutics and materia medica. Must insert a gold filling in the mouth and submit a plate or bridge of not less than four crowns, the parts being assembled and invested in advance, and soldered in the presence of the board.

Application blanks, properly filled out under oath, accompanied by the fee of ten (\$10) dollars, must be filed with the secretary prior to May 27.

F. Drew, Secretary.

701 North Howard Street, Baltimore, Md.

### Michigan State Board of Dental Examiners.

The next meeting of the Michigan State Board of Examiners for the examination of candidates for licenses to practice dentistry in Michigan will be held at the Dental Department of the University of Michigan, in Ann Arbor, beginning Monday morning, June 14, at 9 o'clock. Applications must be in the hands of the secretary at least fourteen days before the examination. Application blanks and rules governing examinations will be furnished by any member of the board.

A. B. Robinson, Secretary-Treasurer.

### Kentucky State Board of Dental Examiners.

The Kentucky State Board of Dental Examiners meets the first Tuesday in June, at 8 a. m., in The Louisville College of Dentistry for the examination of applicants for certificates.

All applications must be graduates of a reputable dental college.

Application blanks for examination will be furnished by the secretary on request, which, with the fee of \$20, must be in his hands ten (10) days before date of examination.

J. RICHARD WALLACE, D.D.S.,

The Masonic, Louisville, Kv.

Secretary.